

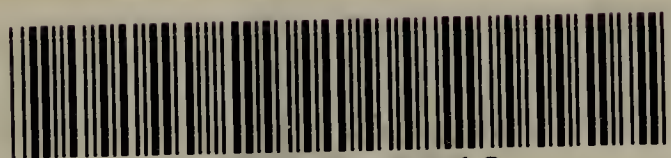
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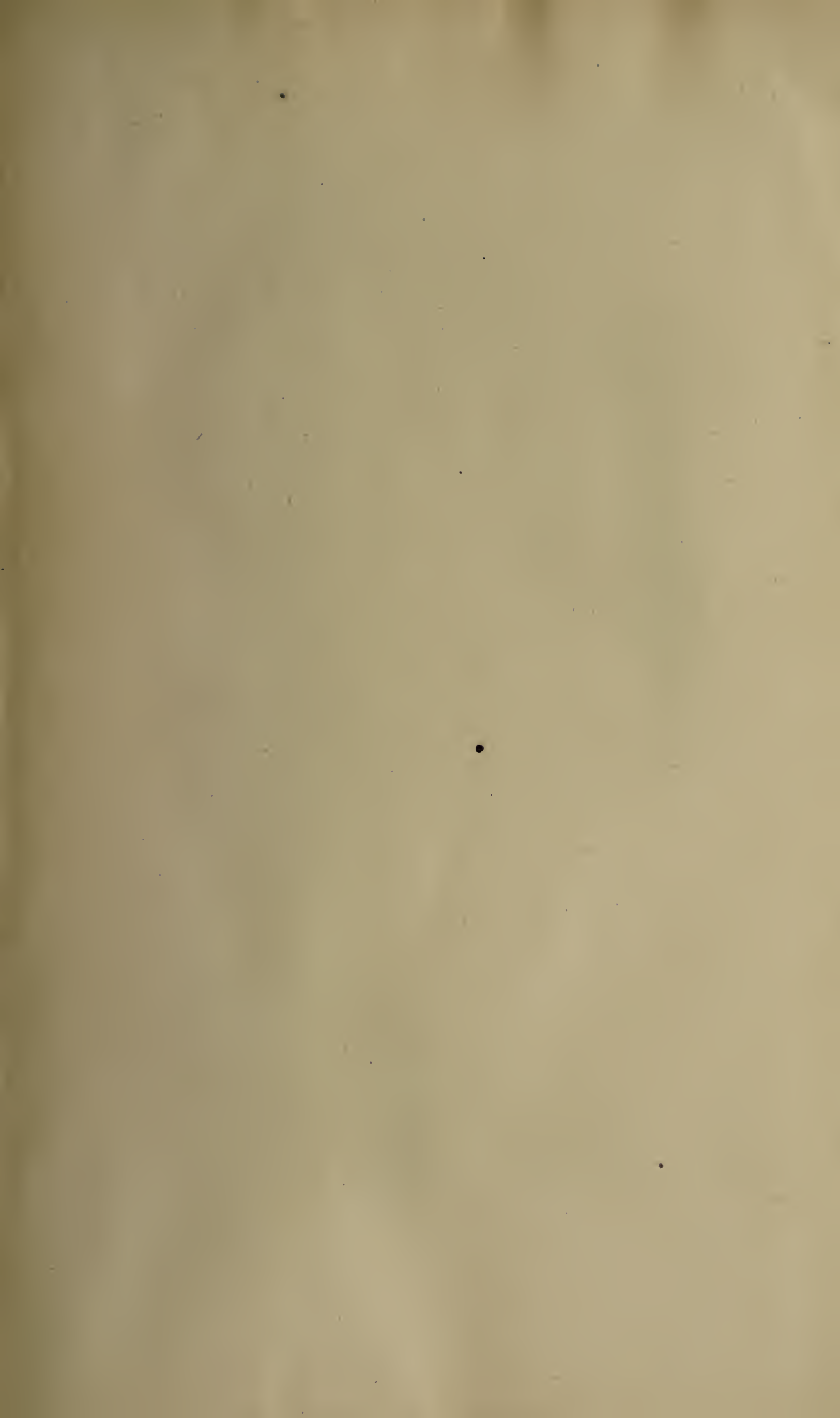
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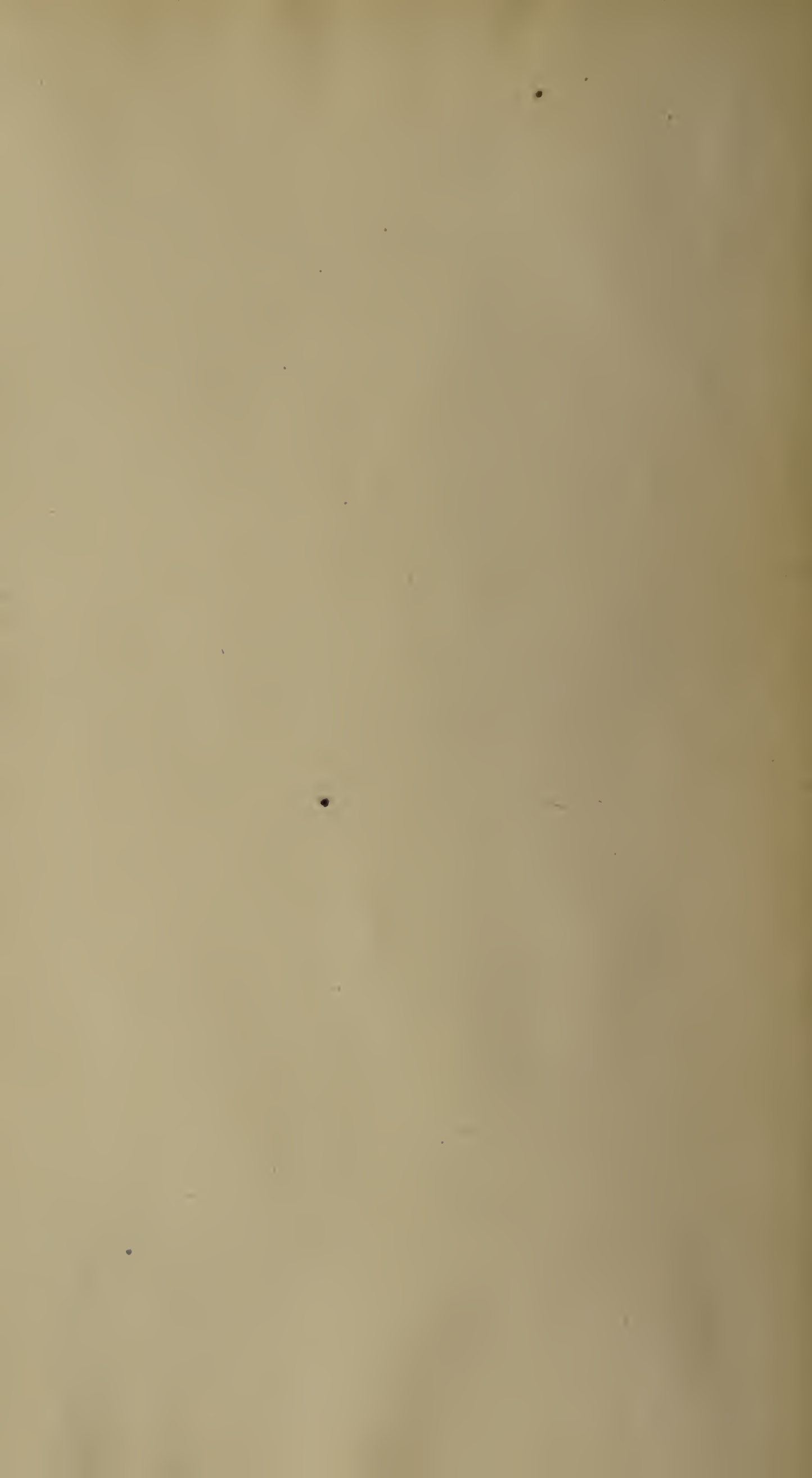
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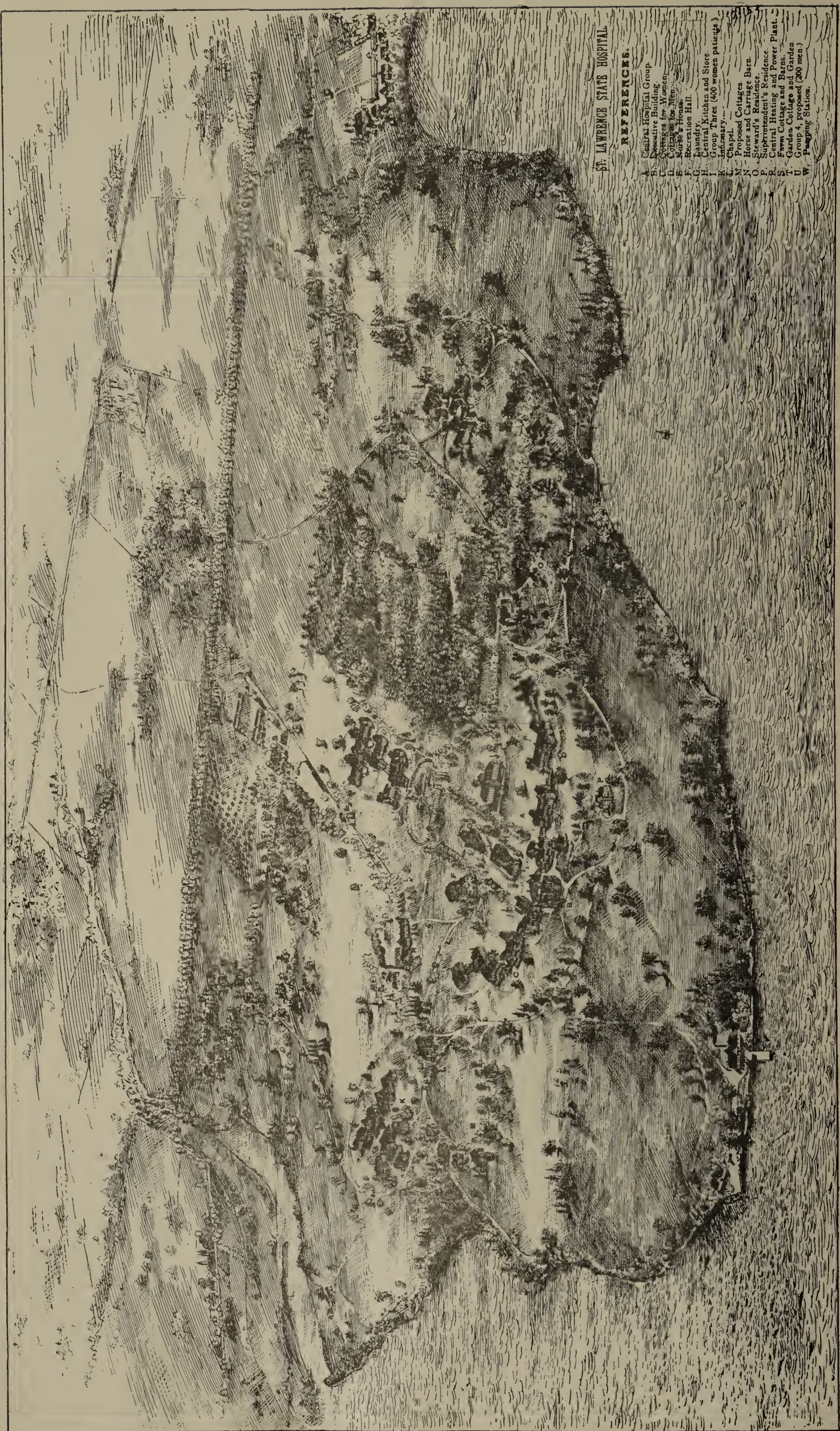
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ST. LAWRENCE STATE HOSPITAL.

REFERENCES.

- A. Central Hospital Group.
- B. Executive Building.
- C. Cottages for Women.
- D. Cottages for Men.
- E. Nurse's House.
- F. Recreation Hall.
- G. Laundry.
- H. Central Kitchen and Store.
- I. Group Three (400 women patients).
- J. Infirmary.
- K. Chapel.
- L. Cottages.
- M. Horse and Carriage Barn.
- N. Steward's Residence.
- O. Superintendent's Residence.
- P. Central Heating and Power Plant.
- Q. Farm Cottage and Barns.
- R. Garden Cottage and Garden.
- S. Group 4, proposed (200 men).
- T. Pumping Station.
- U.
- W.

EIGHTH ANNUAL REPORT

OF THE

MANAGERS

OF THE

ST. LAWRENCE STATE HOSPITAL

FOR THE YEAR 1894.

TRANSMITTED TO THE LEGISLATURE JANUARY, 1895.

ALBANY:

JAMES B. LYON, STATE PRINTER.

1895.

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1894

STATE OF NEW YORK.

No. 8.

IN ASSEMBLY,

JANUARY, 1895.

EIGHTH ANNUAL REPORT

OF THE

MANAGERS OF THE ST. LAWRENCE STATE HOSPITAL.

STATE OF NEW YORK:

OFFICE OF THE MANAGERS,
ST. LAWRENCE STATE HOSPITAL, }
OGDENSBURG, N. Y., *Dec. 5, 1894.*

To the Speaker of the Assembly:

Sir.—I have the honor to transmit herewith the eighth annual report of the managers of the St. Lawrence State Hospital, for the year ending September 30, 1894.

Very respectfully,

GEORGE HALL,

President.



RECEPTION COTTAGE



EXECUTIVE BUILDING



OBSERVATION COTTAGE

CENTRAL HOSPITAL
GROUP

BOARD OF MANAGERS.

GEORGE HALL	Ogdensburg.
WILLIAM L. PROCTOR	Ogdensburg.
GEORGE F. DARROW	Ogdensburg.
JOHN HANNAN.....	Ogdensburg.
OSCAR M. WOOD	Dexter.
JAMES D. TRACY.....	Canton.
THOMAS RYAN.....	Syracuse.
W. T. HENDERSON	Oswego.
ANDREW C. CORNWALL.....	Alexandria Bay.
G. H. P. GOULD	Lyons Falls.

Officers of the Board of Managers.

HON. GEORGE HALL, Ogdensburg.....	<i>President.</i>
MR. GEORGE F. DARROW, Ogdensburg....	<i>Secretary.</i>
MR. JAMES M. WELLS, Ogdensburg.....	<i>Clerk and Treasurer.</i>

Executive Committee.

HON. GEORGE HALL.	MR. O. M. WOOD.
MR. GEORGE F. DARROW.	HON. JOHN HANNAN.

Architect and Building Superintendent.

ISAAC G. PERRY	Albany, N. Y.
----------------------	---------------

Assistant Building Superintendent.

WILLIAM J. AKIN	Ogdensburg, N. Y.
-----------------------	-------------------

RESIDENT OFFICERS.

Medical Superintendent.

PETER M. WISE, M. D.

Assistant Physicians.

J. MONTGOMERY MOSHER, M. D. . . *First Assistant Physician.*

ROBERT G. COOK, M. D. *Second Assistant Physician.*

RICHARD H. HUTCHINGS, M. D. . . . *Third Assistant Physician.*

FLAVIUS PACKER, M. D. *Fourth Assistant Physician.*

CAROLINE S. PEASE, M. D. *Woman Assistant Physician.*

Steward.

WILLIAM C. HALL.

Assistants — Medical Internes.

JAMES BURTON, M. D.

THOS. C. SAWYER, M. D.

Supervisors.

ANNIE F. JESTLEY.

SAMUEL CRABB.

AMELIA M. LOCKWOOD.

CHARLES L. LOCKWOOD.

MARTHA M. CLAY.

JOHN MCGOEY.

THOMAS DINNEEN *Accountant.*

WILLIAM J. MEA *Apothecary.*

LUCY E. MILLER *Secretary.*

KATE A. SHERRY *Housekeeper.*

Foremen of Departments.

ANDREW H. DALZELL.

EDWIN M. STANTON.

CHARLES BARTHOLOMEW.

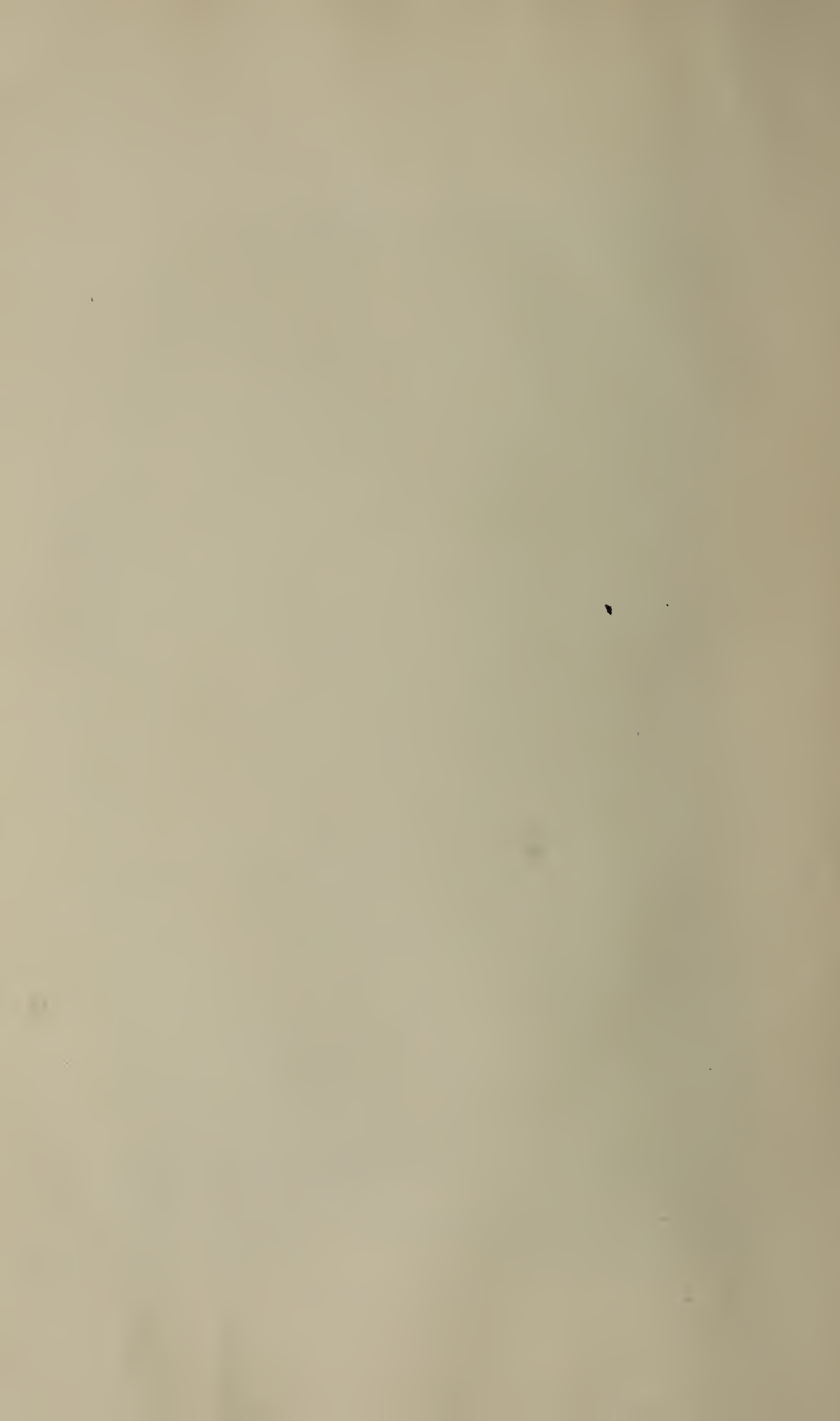
FRANK W. WOODBURY.

GEORGE E. HENSBY.

DANIEL LEAHY.

T. H. RICHARDS.





REPORT.

To the Legislature of the State of New York:

The Board of Managers of the St. Lawrence State Hospital herewith present their eighth annual report to the Legislature, and respectfully submit therewith the reports of the medical superintendent and treasurer.

With the greatest confidence that the work of the year we have to present to your honorable body, as the trust you have confided to our care, will receive your unqualified approval, we cannot refrain from self-gratulation in reporting that we have done more with the ways and means granted us than we undertook to do. The treasurer's report will show a considerable balance of the funds from special appropriations unexpended, but contracts for all the several works have been made, and in every instance below the estimates for the same and the appropriation therefor. It is also gratifying that this permits the payment of all contingencies that invariably arise in new construction, and that with the completion of the work a balance rather than a deficiency can be shown. Granting that this should invariably be the result of public work, it is still reasonable to suppose that unforeseen complications may and do arise, for which provision must sometimes be made in the best interests of the State in advance of legislative consideration.

In reviewing our labors for the year, we point with the greatest pride to the fact that 1,100 of the insane wards of the State are now provided for in accordance with the designs of the "State Care Act." The group of buildings known as *Group Three* providing for 400 patients was fully occupied during the late

winter and spring. Several months later *Convalescent Cottage* of the east wing of the Central Hospital Group, providing for ninety-four patients, was fully occupied. Both these buildings received transfers of patients from other State hospitals.

The future provision for numbers now in course of preparation will consist of *Convalescent Cottage West*, for 100 patients, and the two one-story pavilions for thirty-six patients, that will be ready for furniture before this report is presented to the Legislature. The building for employes, for which an appropriation was made for erecting and inclosing last session, when provision is made for finishing and equipping, will relieve the Central Hospital Group of patients' rooms now occupied by nurses to the number of fifty. This will make the total capacity of the hospital twelve hundred and seventy-nine (1,279).

It is evident to the most unskilled observer that the addition of wards from time to time is resulting in an improved classification of patients. The new buildings that are now awaiting furniture will largely enhance this result and give the medical service advantages in this respect that it has heretofore sorely needed. The employes' building in permitting a separate domicile for nurses for the Central Group will supply a pressing need and allow useful rooms now occupied by them to be applied to purposes of classification and treatment.

Aside from the construction that has particular reference to the immediate use of patients, several important utility buildings have been erected. A vegetable and root cellar fifty by fifty-eight feet on ground plan, with a deep basement story and a roomy ground floor has been constructed. A propagating house for the garden, twenty-two by 100 feet, is in course of erection. An addition to the laundry and improved machinery with an extension of the high pressure steam pipes from the main system, and to furnish the motive power from electric-light

station, has been provided for. This will abolish the separate steam plant that has been maintained for laundry purposes.

Perhaps the most gratifying improvement of the year has been in the grounds and roads. Until the present season no money has been expended in grading, except such as the protection of walls has absolutely required. The supplementary supply bill gave the board the privilege of using some unexpended balances in grading about Group Three, and the rough and expensive portion of this work is now complete. Grading about the Central Group has also been rapidly progressing, and if your honorable body will evince the liberality of your predecessor another year will substantially complete the outside grading, roads and walks about the present construction.

The required approval of plans and estimates for expenditure under the special appropriation by the State Commission in Lunacy, led indirectly to the supervision of the work and counsel of Deputy State Engineer Leutze, whose services have aided us in adopting an admirable and cheap system of road building. With the appropriations already made we will be able to complete about 12,000 feet of permanent road, built for all time, besides the grading and drainage of 5,000 feet more. These are main driveways and require a heavier and wider construction than the interior or "service" roads of which there are still several miles to construct. The medical superintendent's recommendation that an artificial stone-making plant for the winter occupation of patients be installed seems feasible. With these stone tile, walks can be made, and the only expense will be for cement, all other material being on hand. It is but just to state that a large amount of grading has been accomplished by patients, and that they have also aided in loading wagons and have otherwise assisted in the work upon the grounds. A fair estimate of the cost of

the earth removal for the season, without estimating the value of patients' labor, places it slightly under twelve cents per cubic yard.

The city of Ogdensburg has liberally aided in making a permanent highway of an admirable character to the hospital grounds, and have thus carried out the coöperation plan for good roads that was an implied obligation when the Legislature determined upon the location of the hospital. The State has yet to complete the mile of Lisbon road in order to meet the conditions established by chapter 327 of the Laws of 1888.

The board would urgently advise an appropriation for the furnishing of Convalescent Cottage West and the two pavilions for disturbed patients in advance of the regular supply bill. These buildings are now finished, and if we are obliged to await until the funds are available from the supply bill, it will be the latter part of the summer before they are ready for occupancy. If an early appropriation is made, they can be placed at the disposal of patients in the months of March and April. The board also believes that it would be for the interest of the State to grant a special appropriation for the finishing and furnishing of the employes' building. The building is kept warm through the winter to protect it, and work could be easily carried on. Experience has shown that appropriations left for the supply bill are not available until after midsummer, and it is believed that a whole season could be gained in occupying this building if the appropriation was granted early, and the interests of the hospital and State would be furthered thereby.

The design for the hospital contemplated provision for 1,500 patients. This was divided into groups of buildings, each group having a distinct organization. We have been

occupying each of these groups, notably the infirmary, for more than four years without the completion of its design and it lacks still two small wings for wards for 100 of the sick and bed-ridden patients. We advise that the Legislature make provision for the completion of this group, which in order of construction is Group Number One, and also to carry out the advice of the architect to construct auxiliary bath-rooms and lavatories from the main corridors. Then with equipment provided for the Central Hospital Group, or Group Number Two, we will have three groups of buildings completed. The remaining group, number four, has not yet been begun. With the completion of number four the original design for the accommodation of 1,500 patients would be consummated. Whether with our admirable location, large farm and the organization already existing, further expansion would not be eminently desirable and for the best interests of the State, we leave for the future to decide.

We would also especially emphasize the recommendation of the medical superintendent for an appropriation for a recreational building. We are assured that this is a most valuable auxiliary in the treatment of the insane. Diversion from brooding and morbid thoughts is greatly aided by the facilities such a building will afford, and its need is most pressing. There is at present no place provided for general assemblage or for worship and we believe the necessity for such a building will be realized by your honorable body.

It is the judgment of the board that the interests of the State require the construction of some farm and stock barns. The animals on the farm are now poorly housed and sheltered, and, as all buildings existing were scattered barns on the property when purchased, they are totally inadequate, the location inconvenient, and are in a state of dilapidation. We do not advise

any elaborate or costly construction, but that they be substantial and commodious.

We also indorse the recommendation of the medical superintendent in relation to the completion of the boiler-house which will provide room for the fire department, the apparatus for which is now housed in inconvenient places and where it can not well receive proper care. We also indorse his further recommendations for an appropriation for the construction of a mortuary, conservatory and boundary fence, the need for which is fully set forth in his accompanying report. The use of mechanical stokers, which has been used to great advantage on one boiler, may very profitably be extended to the others and a great saving made in the consumption of fuel. We recommend an appropriation for this purpose.

It is exceedingly gratifying to the board to note the enthusiasm manifested by the medical staff in the work of original investigation and research in the recent cases of insanity, and it is by our invitation that the papers prepared on special subjects connected with the service are incorporated with this report.

We call the attention to the report of the architect, Mr. Isaac G. Perry, that is herewith submitted. It contains estimates for the work recommended by the board, and embodies the architect's recommendation for future construction. The past year has shown the correctness of Mr. Perry's estimates, as they have fully covered all necessary expenditure. It gives us pleasure to record our appreciation of the value of his service to the State and of the assistance he has rendered our work.

The board also wishes to evince its most hearty appreciation of the services of Dr. P. M. Wise, the medical superintendent of the hospital. The labor involved in organizing a complete new hospital service has been herculean, and his efforts to perfect and extend all departments have been untiring. His assist-

ance to the board in matters of construction has also been invaluable. His spirit and enthusiasm have inspired all his assistants and they have worked with a singleness of purpose very gratifying to the board. We also render thanks to all departments of the hospital service. Their loyalty and efficiency have contributed very much to the successful administration of affairs.

Respectfully submitted,

GEORGE HALL,
W. L. PROCTOR,
GEO. F. DARROW,
JOHN HANNAN,
O. M. WOOD,
J. D. TRACY,
THOS. RYAN,
W. T. HENDERSON,
A. C. CORNWALL,
G. H. P. GOULD,

Board of Managers.

Report of the Treasurer.

To the Board of Managers:

I herewith respectfully submit the Treasurer's Report, for the year ending September 30, 1894:

Special Appropriation Building Fund.

Balance report December 1, 1893, in hands of Comptroller,	\$211,298 56
Balance report December 1, 1893, in hands of Treasurer..	53 94
Appropriation (chapter 358, Laws 1894)	171,743 00
Received interest on deposits	36 48
From Martin & Sullivan for bags returned them	27 90
Total	<u>\$383,159 88</u>
Audited and paid claims from December 1, 1893, to November 20, 1894.....	<u>271,833 97</u>
Balance in fund	<u><u>\$111,325 91</u></u>
Balance in the hands of Comptroller.....	\$111,310 24
Balance in the hands of Treasurer	15 67
	<u><u>\$111,325 91</u></u>

There is sufficient funds in the hands of Comptroller to cover all liabilities incurred.

Furniture Fund.

Balance in the hands of Comptroller December 1, 1893..	\$12,804 69
Balance in hands of Treasurer December 1, 1893	53 94
Received of Ogdensburg bank, interest on deposits.....	36 48
Received of Martin & Sullivan for bags returned them..	27 90
Total	<u>\$12,923 01</u>
Audited and paid claims from December 1, 1893, to November 20, 1894.....	<u>12,903 03</u>
Balance in fund	<u><u>\$19 98</u></u>

Balance in hands of Comptroller	\$4 31
Balance in hands of Treasurer	15 67
	<hr/>
	\$19 98
	<hr/> <hr/>

Receipts and Disbursements.

Special Account to November 20, 1894.

Balance in the hands of Treasurer December 1, 1893....	\$53 94
Received from Comptroller.....	271,731 32
Received from interest on deposits	36 48
Received from Martin & Sullivan for bags returned them,	27 90
	<hr/>
	\$271,849 64
Paid vouchers from December 1, 1893, to November 20,	
1894	271,833 97
	<hr/>
Balance	\$15 67
	<hr/> <hr/>
Balance in the hands of Treasurer November 20, 1894 ..	\$15 67
	<hr/> <hr/>

Old Maintenance Account, September 30, 1893.

Balance on hand.....	\$24,758 73
Received from private patients.....	628 85
Received from Clinton county	26 39
Received from Essex county.....	1,257 98
Received from Franklin county	206 69
Received from Lewis county.....	205 79
Received from Onondaga county.....	634 48
Received from Oswego county.....	125 07
Received from Cayuga county.....	7 89
Received from State Board of Charities.....	111 92
Received from Comptroller.....	3,550 00
	<hr/>
	\$31,513 79
	<hr/> <hr/>

Disbursements.

Paid New State Care Act Fund	\$5 00
Paid vouchers as per statement sent Comptroller.....	31,508 79
	<hr/>
	\$31,513 79
	<hr/> <hr/>

State Care Act Maintenance Fund.

Maintenance Account, September 30, 1893.

Received from old maintenance account.....	\$5 00
Received from Comptroller.....	206,768 37
Received from support private patients.....	1,617 29
Received from support reimbursing patients.....	2,771 71
Received from interest on deposits	104 66
Received from sales, rents, etc. (steward)	809 80
	<hr/>
	\$212,076 83

Disbursements.

Paid vouchers as per statement sent Comptroller.....	208,879 21
	<hr/>
Balance on hand September 30, 1894	\$3,197 62
	<hr/> <hr/>

JAMES M. WELLS,
Treasurer.



SOLARIUM, CENTRAL HOSPITAL

Report of the Architect.

*To the Board of Managers of the St. Lawrence State Hospital,
Ogdensburg, N. Y.:*

GENTLEMEN.—I herewith submit the following general description of the various buildings, etc., to be erected, and for the finishing of the building for employes, for the St. Lawrence State Hospital.

The first building under consideration is the amusement hall for theatricals, gymnasium, and swimming and spray baths. There are also provided two good rooms on either side of the corridor in the first story, and two good rooms on either side of the assembly hall in the second story.

This building is designed to be 164 feet deep over all; auditorium, sixty-eight by seventy feet, with a seating capacity of 522. The seating capacity of the gallery is 350, making a total of 872 liberal sittings for adults. The stage of this building is to be used for theatricals, gymnasium and dancing hall, and is sixty by sixty-eight feet in the clear, which would be very ample space for the purposes.

The floor of the auditorium is designed to be raised from the stage to the passageway along the main entrance, and made in the most approved form for seating auditoriums in theaters, so that each row of seats, when arranged on a curve, will be nearly level across the auditorium. Two tiers of dressing rooms are provided on each side of the stage.

The two main entrances through the front of the building are each sixteen feet wide, with a flight of broad fire-proof stairs in each, which will extend to the second story corridor on a level with the gallery.

There is a liberal space for a cloak room between the main entrance corridors, and two rooms for offices on each side, each nineteen by twenty-four feet, and two toilet rooms, each six by fourteen feet. There is an assembly room in the second story over the corridors thirty-one by thirty-three feet six inches, and a room on each side nineteen by twenty-four feet. There will be four doorways for ingress and egress from the auditorium, and three from the stage, thus providing liberal exits from the building. I have revised the drawings by increas-

ing the dimensions, thereby providing additional seating capacity of 184 sittings, well knowing that when provisions are made for the maximum number of patients of the hospital, it will be often filled to its maximum capacity, therefore it would be wise to make the building of the dimensions required to accommodate at least 872 in the auditorium and gallery.

The first impression will be that the building is very large for the uses of the hospital; but when it is understood that it provides for other purposes as well, viz : for dancing hall and gymnasium separate from the auditorium and swimming and spray baths in the basement, it will be economical for the purposes it combines.

The outer walls from the proscenium opening to the rear of the stage are necessarily heavy, in order to maintain their positions, as there are no partitions to support them, and they must go down somewhat deeper below the surface of the ground than the foundations of the other buildings, so as to be on a level with the bottom of the swimming tank. The building is as small as it would be wise to construct it. The walls from the line of the auditorium to the rear of the building are necessarily carried up very high, in order to give an opportunity of raising the scenery out of the way of the stage for theatricals and gymnastic purposes. The stage is designed to be fitted up with the most approved stage machinery. The proscenium opening is to be thirty-five feet wide, which will enable the audience to have a full view of the stage, and of the dancing parties, by which means a large number of people will be entertained, both as spectators and by taking part in the dancing festivities.

I prepared a carefully detailed estimate of the cost of erecting and inclosing the structure, including rolled wrought-iron girders and iron columns for supporting the gallery, plate girder over proscenium arch, floor timbering, etc., amounting in all to \$81,184.70.

The outside walls are designed to be lined with Potsdam red sandstone broken ashlar, backed up with quarry stone, with the linings inside of the stone walls of brick, the same as the walls of the other hospital buildings. The roof is designed to be supported on wrought-iron roof trusses and covered with black slate.

The next buildings under consideration are the two additions to the Infirmary Group, two stories in height, which are separate and distinct buildings, and were contemplated in the original plans, but were not constructed for the lack of necessary funds. The kitchen and dining-rooms are ample for the requirements of these additional buildings to the present group. The length over all is 109 feet, depth through one

end section thirty-nine feet four inches, through center section twenty-nine feet eight inches, through opposite end section fifty-four feet four inches.

These infirmary buildings are connected with the dining-rooms by circular corridors forty-five feet long, with verandas on either side. The first story of each building contains eight single rooms, each eight by twelve feet; one parlor twenty-four by fifty feet, with openings on four sides. A large fireplace and a fire-proof staircase are provided; also a ventilating stack, extending up from the basement to and through the roofs. All the ventilating flues will be gathered into galvanized iron ducts, and connected with the ventilating stacks.

Adjoining each day room is a lavatory eight by fourteen feet; bath-room twelve by thirteen feet eight inches; room for water-closets nine by twelve feet, and a clothes room eight by nine feet. On the north side of each building is a veranda ten by twenty-six feet. One section of the corridor between the rooms and the outer wall is eleven feet four inches by twenty-eight feet, well lighted through four windows, and a doorway from this corridor to the veranda is located in the recess. The other section of the corridor is eight by twenty-nine feet, by a total length of fifty-seven feet.

The plans of these buildings have been carefully considered, and the rooms properly arranged to meet the requirements of the class of patients that will occupy them. The arrangement of the second story is the same as that of the first.

The outer walls of these buildings will be faced with native bluestone ashlar, to correspond with the adjoining buildings, and lined up with brick. The division walls are to be constructed of brick, with heating and ventilating flues. Lavatories, water-closets and bath-rooms will have iron beams, brick arches and encaustic tile floors. These two buildings will be very permanent in their construction, convenient for administration, and will accommodate forty patients each.

I submit for the consideration of the board of managers, the long contemplated building designed to be connected with the present dynamo building and boiler-house, to extend west from said dynamo-house a distance of ninety-eight feet over all. The structure is designed to be used for workshops, and high water service, the water to be drawn from the tanks located in the sixth and seventh stories of the western section of the structure. All other portions of the building are designed to be used for workshops. The water system and plumbing throughout all of the buildings is to be connected with the tanks which are to furnish the supply to all the buildings during the night, thus doing away with the

necessity of running the pumps more than twelve or fourteen hours per day, which would be a very great improvement from an economical standpoint and maintenance, as the managers are fully aware it is very desirable to reduce the cost of maintenance to a minimum amount per capita.

The structure is connected with and extends out from the dynamo-house ninety-eight feet as above stated. The section between the seven-story building and the dynamo-house is two stories high. The fire apparatus will be contained in the first story of the seven-story section. A well extends up through all the stories of the staircase for drying hose. The walls of the tower are 103 feet high and the roof seventeen feet additional, making a total of 120 feet. This portion of the structure is designed to be twenty-eight feet wide and forty-eight feet deep. The steel water tanks in the sixth and seventh stories will be carried on plate girders. The archway between the two sections of the building will be twelve feet wide. The plans provide for three stairways, two in the one-story portion, and the other, a fire-proof staircase, in the tower.

The outer walls of the structure are designed to be faced with blue-stone ashlar, backed up with quarry building stone, to correspond with the dynamo and boiler-house. It is designed to fit up all the shops throughout with the most improved machinery, to be used for the manufacture of such articles as will be made at the hospital.

The Finishing of the Building for the Accommodation of Employes.

This building is 204 feet long over all, and contains accommodations for 100 employes. This structure was erected and inclosed during last season, and the plans provide for building porches at either end, in order to provide rapid ingress and egress from the building in case of fire, and also as a convenience and comfort for the occupants who would use the porches a great deal during the summer season.

The structure is two stories high, and the walls are faced with Potsdam red sandstone ashlar.

The work yet to be done on the exterior is, to build the porches at either end of the piazza around the bay on the west façade and also in the recess of the extensions on the north side. The floors and roofs of the porches at either end of the building will be supported by red sandstone piers and corbels. The floors will be constructed on wrought-iron beams, brick arches and kosmocrete surface, or such other fire-proof

material as may be deemed best. The first and second stories will be provided with terra-cotta railing in the openings between the piers. There will be iron stairs from the first to the second story; thus it will be seen that the porches will be absolutely fire-proof.

This building is most admirably constructed, and the inside of the outer walls lined up with brick. The division walls are built of brick, in which are constructed the heating and ventilating flues. The walls of the building are surmounted by high pitched roofs, covered with black slate, and the attic is thoroughly lighted through dormer windows, affording good and well lighted space for connecting up the ventilating system, which will be formed of ducts connected with the brick flues and extending to the ventilating stacks. The building will be warmed throughout with the most approved system of indirect steam heat. Much care has been devoted in arranging this building, so as to provide for the comfort of the employes. The first story contains a parlor twenty-four by thirty-eight feet, and the second story two parlors. The drawings for finishing this building are now completed.

Additions to the Laundry Building.

The provisions for doing the laundry work for the hospital at the present time are inadequate, and more room has to be provided for that purpose. In order to secure the requisite amount of space, it is deemed best by the board of managers to construct two simple additions to the present laundry building, each thirty-five feet four inches by fifty-six feet, one on each side of the dry-house, which projects out from the main building a sufficient distance to receive the additions.

These structures are one story high. One will be used for an ironing room, a portion of the other for a room for sorting soiled clothes, and a portion where the laundry work will be done by hand.

The walls of the addition will be constructed of stone to the underside of the window sills and faced with native bluestone ashlar, to correspond with the other portions of the building, and from thence to the underside of the frieze it will be constructed with piers and columns, the spaces between the piers filled in with grouped windows.

The roof is covered with tin, and is provided with a ventilator ten feet by twenty-six feet with clere story windows that can be opened and closed. By such means a circulation of fresh air will be procured.

The estimate includes an enlargement of the system for drying clothes.

Water-closet Extensions of Infirmary Group.

After long experience, the medical superintendent has concluded that spray baths for the use of the class of patients cared for in the Infirmary Group, are better than bath-tubs, from the fact that the patients can be much more quickly and thoroughly washed by the system of spray baths. As the water drains from the patients, it is immediately carried off by drains.

The plans show two buildings in the form of a letter "L." The main structure is twenty-two feet six inches by forty-two feet eight inches, and the other section is twenty by twenty-two feet. The baths room and lavatories are reached from the main building by a short corridor. The room for lavatories is fifteen by twenty-eight feet, bath-room twenty-two by twenty-two feet, room for water-closets fifteen by fifteen feet and connecting corridor five by twenty-five feet.

The floors of these buildings to be constructed of rolled wrought-iron beams, brick arches covered with glazed tile, and so laid that the water will drain to the center of the room, at which point it will enter the drain. The inside of the walls should be faced with buff-colored glazed brick, laid close joints in "Keene" cement. The walls on the outside will be faced with broken ashlar blue limestone, to correspond with the walls of the other buildings. The ceilings will run up on a line with the rafters, and covered with matched boards and paper, with steel ceilings laid over the same.

Mortuary.

The plans represent a building suitable for that purpose.

The dimensions over all are thirty-nine feet eight inches by forty-one feet four inches. There are three entrances. The plans provide for a chapel sixteen by eighteen feet, which extends out from the main structure nineteen feet four inches, a receiving-room and an operating-room, each twelve by seventeen feet eight inches, vault seven by nine feet, dark-room two feet ten inches by ten feet, and a room fitted up with cases for instruments, sink, etc., six by ten feet.

The chapel will be lighted through the walls, and the receiving and operating rooms, through the roof.

The walls of the building will be constructed of stone, and faced on the outside with broken ashlar. The gutters will be of copper, and the roof covered with black slate. The ceiling will finish on a line with the roof, and be covered with steel. The walls will be finished on the inside with glazed brick, laid in "Keene" cement, and the floors constructed with iron beams, brick arches and glazed tile.

Conservatory.

The drawings submitted represent a conservatory twenty-three feet wide and 158 feet long.

The foundations of the structure are to be of stone, built up just above the grade line. The sides and roof are to be of wood frames, glazed with double thick American window glass.

The trusses that carry the roof are to be of wrought-iron, and the purlins of wood.

You will see, on examination of the drawings, that the structure is to be built on a segment of a circle. The convex side will face the south. The design represents a circular bay at either end, thirteen feet in diameter, carried up thirty feet above the grade line.

The frame work of the sides and roof are to be glazed in the same manner as the other portions of the building.

The structure is of an artistic design, and will be located in a conspicuous position between the Laundry building and Group No. 3.

Dynamos.

It is very desirable, as a matter of economy, that there be installed in the dynamo-room two additional dynamos to run independent of the plant that is now installed, and direct from the engine. These dynamos would furnish light and power for day use, and a portion of the nights during the summer season, and allow the present shaft to remain idle a portion of the time for necessary attention and repairs.

Estimates for the St. Lawrence State Hospital, for the ensuing Year.

Erecting and inclosing amusement hall.....	\$81,184 70
Erecting and inclosing two wings to Infirmary Group ...	50,237 70
Finishing two wings to Infirmary Group	23,158 60
Steam-heating, plumbing and electric wiring for the two wings of Infirmary Group	11,549 70
Erecting and finishing two bath-room and toilet-room extensions of the Infirmary Group	22,630 00
Steam-heating and electric wiring for toilet-room extensions of Infirmary Group	1,579 00
Repairing and replacing plumbing fixtures of Infirmary Group	3,582 00
Finishing employes building, including steam-heating, plumbing and electric wiring.....	44,821 10

Erecting and finishing building adjoining boiler-house for high service water tank, shops and hose-house	\$39,320 00
Automatic stokers for boilers	3,600 00
Mortuary chapel	6,200 00
Conservatory	9,000 00
Additions to Laundry building	6,930 00
Washing machinery	900 00
Mixers, motors, etc., for bakery	1,500 00
Fire extinguishing apparatus	1,200 00
Furnishing and laying four-inch water supply from the water main to the garden cottage	1,976 00
Six cottages for employes	9,000 00
Barns	5,000 00
Equipment of Convalescents' Cottage West and two cottages for disturbed patients	15,000 00
Addition to library	500 00
Agricultural drains and farm fencing	500 00
Roads, grading, etc	20,000 00
Sterilizer	750 00
Fencing boulevard	5,500 00
	<hr/>
	\$365,618 80
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Respectfully submitted,

I. G. PERRY,

Architect and Building Superintendent.



FACADE FROM EXECUTIVE.

ONE STORY PAVILION.

CONVALESCENT COTTAGE.

OBSESSIVE WOMEN.

CENTRAL HOSPITAL GROUP.

Report of the Medical Superintendent.

To the Board of Managers:

The law provides that the medical superintendent shall annually present to the board of managers a report of the operations of the hospital for the preceding year.

The intent of the law as to operations is interpreted to mean all matters of public interest, the chief of which, it may safely be assumed, is the attainment of those purposes for which the institution was created. These can briefly be stated as the treatment and care of the insane, and their results.

The past year has been attended with a more rapid development of the hospital, in every respect, than any previous year. The number of our patients has been increased from 688 to 1,100 (on September 30, 1894). We have equipped, organized and filled the largest group of buildings in our designs, and it is now occupied by four hundred patients, besides the necessary officers, nurses and other employes. This, the third group of buildings for patients, hence known as group number three, is the first unit of construction that has been completed. The first two groups are still unfinished. It is, therefore, the first instance you have had of a complete organization under the plans adopted for this hospital; and you are assured, I know, of its complete success in meeting the requirements demanded.

Group No. 3 has some unique features of plan that are worthy a brief review. Fundamentally, it is an aggregation of two-story buildings, connected by closed corridors, which can be warmed, making it practically, as far as intercommunication is regarded, one building; while for breakage in roof lines and lighting purposes, the buildings have all the advantages of separation. The entire group covers a ground space 400 by 600 feet. A central or administration building contains the offices, and is the residence of an assistant physician and a medical interne. The supervisor resides in the opposite extremity of the group. A building at an angle of the group is a nurses' house, and has accommodations for seventy nurses. At a corresponding angle on the opposite side is a ward building. At the other—southern—extremity of the group composing the angles, are ward buildings in the

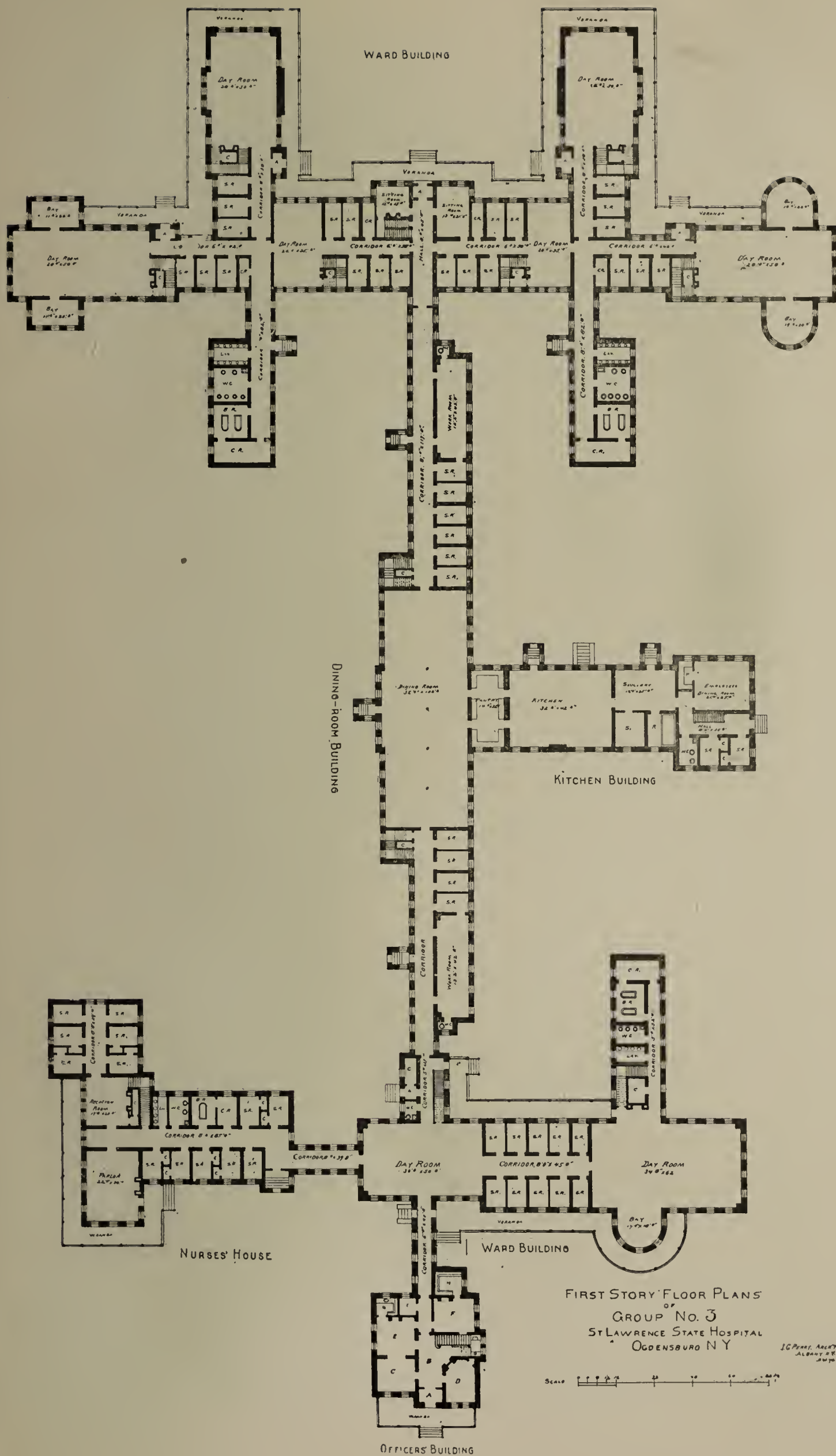
shape of a Greek cross, three arms being used as wards proper and the remaining one for bath-rooms, water-closets and lavatories, for the common use of the three adjoining wards. This is a feature that is giving us greater satisfaction than we anticipated, and it can be commended as a solution of the water-closet nuisance upon hospital wards. This water wing in common use by the adjoining wards is of sufficient importance to call for constant attendance, and every patient resorting thereto is under surveillance. Connecting the two southern angles is a building for offices, reception room and residence of supervisor. Between the northern and southern groups is situated the associate dining hall, with an independent kitchen wing; and off the corridors connecting the dining hall with the ward buildings are workshops.

We contend that for simplicity of arrangement, ease of administration, sanitary requirements and beauty of outline, this plan has never been excelled. The same domestic arrangement prevails here as in the other hospital buildings. Patients occupy the first story during the day hours, and sleep in the second story. Verandas substantially surround the building. First story windows are unguarded and a large liberty of movement is permitted to patients.

Another cottage of the *central hospital group* was completed and occupied during the year. The three cottages completing this group will be ready for occupancy in January, if the necessary appropriation for furniture is promptly made upon the convening of the Legislature. These will provide facilities for 136 patients, making the total of our accommodations 1,226. The employes' building, or, as it should be called, the nurses' house for the central hospital group, when completed, will relieve the wards in the central hospital to the equivalent of fifty more patients, thus making a total of 1,276. It is to be hoped that the board will not favor the designation of numbers of patients to be provided for, in the appropriation bills, when the adopted plans do not warrant it. Our walls are of stone and brick, and are fortunately unyielding, and can not be expanded by statute.

It is appropriate to congratulate your board upon the progress in construction, organization and improvement that has been maintained during the year. Our growth has been phenomenal, and has never, probably, been exceeded before in the same number of years. Notwithstanding this rapidity of construction, and the embarrassment of creating an organization and maintaining a large hospital, while it is in process, we maintain that we are doing our work as well and with as good results as are the older institutions.

The health standard of the hospital has been good until recently. During September, and shortly following the breaking up of soil about



FIRST STORY FLOOR PLANS
OF
GROUP NO. 3
ST. LAWRENCE STATE HOSPITAL
OGDENSBURG NY

16 PERMIT. ARCHT.
ALBANY N.Y.
1885



many of the ward buildings for the purposes of grading and road making, a form of fever prevailed, which we have designated malarial typhoid. The number of nurses was in great proportionate excess to the number of patients affected, and from this disease, two of the former died. We are reasonably certain that the disease was not due to water carriage infection, and the soil emanations, particularly from the excavation of some extensive muck beds, would appear to furnish a plausible explanation of the endemic. Fortunately, no extensive soil movement about the buildings will again be necessary.

The State Care Law.

The operation of the new law, providing for the maintenance of the insane by the State, with the provision for monthly estimates for expenditures to be made in advance and to be subject to the approval of the State Commission in Lunacy, went into effect at the beginning of the fiscal year ending upon September 30, 1894. The friction that resulted from the early operation of this law, is in some degree a matter of State record. It is certainly not of a nature to be reviewed in this official report. The controversies that were begotten, by whatever cause, have now ceased almost altogether, and our present relations with the State Commission in Lunacy are harmonious. The prudence and wisdom of the Legislature in vesting a power of supervision of accounts in a State Commission, can not and has not been questioned. The limitation of this power short of a veto on necessary labor and material, would appear to be a proper subject for consideration at any time.

The practical operation of this law, since it has recovered from the embarrassments of its inauguration, does not appear to conflict with the welfare of the hospital. In the matter of stores and supplies, our standard continues as high as formerly, and in the case of some staple articles the standard has been raised. Our wants have all been supplied, and all our estimates, with very few and small exceptions, have been allowed. A supervisory commission actuated by a fair spirit of criticism is an aid to an institution and its resident head, and is, therefore, desirable. The action of the Commission in regard to some trivial matters of administrative detail, hardly worthy the dignity of their high office, might with propriety be reconsidered. The arbitrary action upon an allowance for tobacco for patients is an instance. It would seem that matters of this nature could be safely left to the judgment of the several medical superintendents. The decisive prohibition of any article, and especially of one in such universal use as tobacco, seems unwise. The following table shows the aggregate amount of

monthly estimates for the year, with the amounts allowed after revision by the State Commission in Lunacy, and, finally, the amounts actually expended under the respective estimates:

	Estimated.	Allowed.	Expended.
October	\$21,358 40	\$16,747 45	\$15,770 78
November	17,718 98	16,098 47	15,238 41
December	17,077 76	15,330 55	14,441 97
January	18,309 49	17,687 77	16,734 14
February	21,309 30	20,795 05	19,502 40
March	25,282 73	24,559 16	23,121 07
April	18,331 63	18,122 51	16,449 10
May	20,341 19	20,146 34	18,842 04
June	16,873 12	16,817 10	15,473 01
July	19,178 88	18,901 38	17,718 90
August	18,944 63	18,879 63	16,849 94
September	20,605 70	20,313 95	18,737 45
Total	\$235,331 81	\$224,399 36	\$208,879 21

The average per capita cost of maintenance, including officers' salaries and clothing, was four dollars and thirty cents weekly. The increase in the number of patients from the beginning to the end of the year exceeds forty per cent., and the reduction in cost was about that anticipated and predicted.

Construction and Improvements.

It will be needless for me to review the advance in construction for the past year, as the board of managers, particularly the executive committee, have given all the work of the year their careful and constant attention and are well prepared to present the matter in all its details to the Legislature.

An outline, therefore, of the more urgent needs for the ensuing year will suffice. In the future as heretofore, it is desirable that the board provide, as rapidly as the Legislature permits, for the more urgent practical needs of the hospital service. A double purpose is thus accomplished, by forwarding the hospital to completion—a desirable end that is near—and by keeping its usefulness up to the highest standard possible in an incomplete institution.

Recreational Building.

It is an anomaly, if not an abuse, that the Legislature should not longer permit to exist, that the second largest State hospital in New York—if cubic space is considered—should not have a place set

apart for the congregation of patients, for the purpose of treatment by diversion, and for religious exercises. The requirements of a large hospital for a building or room devoted to these purposes can not be gainsaid, and its need is recognized by members of the State Commission in Lunacy, the Governor, members of the Legislature who have given the matter attention, and all persons conversant with enlightened methods of modern treatment of insanity. There may have been reasons heretofore for delaying this expenditure, but if they still exist they are completely overshadowed by an actual want that must be supplied. If we can not obtain the permanent structure so admirably designed by the architect, Mr. I. G. Perry, then we should have a temporary building for this purpose, and resort to "barn-storming" as a means of entertainment. We have partially supplied our necessity up to this time by using a sitting room at the infirmary for patients to meet for social and religious purposes, but a better-defined classification will not allow the use of this room for this purpose much longer and we have no other place to substitute for it. If the amount asked for the building already designed appears to be too large, it may be shown that the one structure will serve the purpose of three or more buildings or departments as usually constructed in hospitals for the insane. For, in addition to the amusement hall, provision is made for a general bathing establishment, a gymnasium, a lecture room for the training school, a photograph gallery, a billiard room and reading room for patients. Its multiple purposes will call for its constant use day and evening, and all of them will supply positive requirements.

Additional Ward Buildings.

For provision for additional patients, the completion of the infirmary wings offers the best opportunity. The infirmary was designed for the accommodation of 300 patients, and this number can well be furnished from the present refectory facilities. The addition of these two wings for infirmary wards will thus provide dormitory accommodation for 100, and complete this group of buildings.

Employes' Colony.

In my report to your board for 1890, I referred to the subject of provision for a small number of the insane in families, as follows: "A few years since I suggested the consideration of a plan for the care of the insane, in families composing the small settlements that usually grow up in the neighborhood of the larger hospitals. A large proportion of these families are the outgrowth of marriages amongst the

attendants and employes of the hospital, and the female head of the family is usually a person who has had more or less experience as an attendant, and what is of greater value, has a personal acquaintance with and of times a tender regard for some of the patients who have been in her custody.

“The situation of this hospital is particularly well adapted for the development of such a plan. As the hospital buildings are nearly in the center of the large farm, some provision must, in any event, be made for the residence of married employes, as to have them reside outside the hospital grounds would entail too great a loss of time of coming to and from labor. I would suggest collecting the various farm-houses upon the premises—relics of former days—and allot them each a modicum of land for garden and lawn. If the number of houses will be found insufficient after proper repair, additions could be made at a moderate price that would make ample return in rentals. In this domestic colony, you may rest assured, can be developed a system of family care that will have all the advantages claimed for it elsewhere and that will meet the burden of objections that weigh against it as it has heretofore been practiced. This “Little Gheel” can relieve the State from construction for at least four per cent of the insane in the St. Lawrence district. The insane cared for there can have daily medical visitation, and in case of relapse can be easily and immediately transferred to proper care. They will be under skillful espionage, and the liability to abuse will be reduced to a minimum, while they will have all the privileges and benefits of country farm and domestic life.”

Four years' additional experience confirms my opinion of the practicability of this plan. The time has also arrived when the good of the service requires a nearer residence of desirable married employes than the nearest city houses afford, and this can not be gained unless some provision is made for them upon the hospital farm. In connection with the plan suggested this can be done in an admirable manner and really without cost to the State; for in addition to the returns which these houses will afford in rentals, they will relieve the State from construction for a number of the insane, equivalent to more than their cost. I would suggest that an appropriation be asked for six houses to cost \$1,500 each, for construction the coming year.

Fire Department.

The boiler house construction should be completed. This will comprise a westerly extension from the present structure to supply appropriate shops for wood and iron working, a room for the fire

department with a tower for drying hose. The suggestion of the architect that a water tankage should also be provided in this building capable of furnishing a night's supply is worthy of consideration. Provision for shops and a fire department house should, however, not be delayed. The latter need is perhaps the greater, as at present our fire extinguishing apparatus is housed in barns and out-buildings, at points remote from each other. Our fire department also requires more material particularly a chemical engine, which is part of the equipment in other State hospitals, is desirable. An appropriation of \$1,200 will supply our requirements for fire extinguishing apparatus.

Mortuary and Conservatory.

A mortuary and conservatory will complete the line of construction between the Central Hospital Group and Group No. 3, and both are needed. They should be constructed at the same time, for economical reasons, as the same heating plant will necessarily supply both buildings

Boundary Fence.

With the change in the public road traversing the hospital farm east and west (the Lisbon road) the hospital buildings will be so far from the highway as to free them from any interference that is not premeditated. In order to give them substantial protection, a fence should be constructed along the north or hospital boundary to the highway, and thence to the river along the farm boundary. An east and west entrance should be provided with gates and lodges, that at a fixed hour at night could be closed and attended. Night trespass could then be controlled, and a proper surveillance of night visitors could be made. The importance of such a service to a large public institution situated near a town can not be too strongly emphasized. During the past season a partial night police inspection of the grounds satisfied me of the importance of this boundary fence, and it should be provided the coming season. I suggest that a heavy picket fence, seven feet high, with entrances fitted with iron gates, be constructed. About 7,000 feet of fence will be required, but the labor of grading, post setting and the rough work can be performed by the regular force of the hospital.

Grading, Roads and Walks.

The past year has been the first in which any labor, except such as patients could give, has been expended in carrying out designs for landscape work, or in the construction of lawns and roads. Another year as favorable as the past will see this work substantially finished, and it is sincerely to be hoped that you may secure a liberal appropria-

tion to continue and complete it, if possible. An insane hospital should have the outside and inside of its buildings in harmony. Its occupants respond to the æsthetic stimulants when other reflexes are unresponsive. All the work that has thus far been done is in carrying out a well-matured design of the landscape work as a whole, made by a master in the art, and none of it will ever need reconstruction as a result of hasty planning. Planting should be abundantly done the coming spring on those grounds that have been graded the present season, and in order to save time for effects, the transplanting of large trees should be attempted by present well-known methods.

Pertinent to this subject is that of the best permanent walks, of which there are several miles to be built. I am satisfied from experiments that the ordinary concrete walk is not enduring in this climate, and, if agreeable to the board, it is our intention to commence the manufacture of artificial stone blocks one foot square and three inches in thickness during the coming winter. This will afford occupation for a number of patients, and its cost will be confined to the cement used in the process, the other material being on hand. With these blocks walks can be constructed upon sand foundations, and if raised by the frost can again be leveled by resetting, without destruction of the blocks. In order to install this work, if approved by your board, it will be necessary to have some one taught in the best process of mixing and forming the blocks, and to be provided with the cement.

Stock Barns.

The question of permanent barns has never been seriously approached, for the reason that other buildings that have appeared to be more necessitous have overshadowed them. The time is approaching when this matter can not be overlooked, for our live stock interests are each year becoming of more importance. In view of our other necessities the present year that seem more pressing, it may appear to you desirable to postpone this matter, and, if so, I can assure you of our ability to make the present temporary housing of cattle suffice for another year. It will be necessary, however, to make some additional temporary structure for cows before the coming winter, as the number of our milch cows must be increased in order to give us the necessary milk supply. We are now compelled to purchase milk and it is with difficulty we can do so.

Laundry Addition.

The improvements that have been recently made in the laundry will increase its efficiency twofold, and it is believed that a further enlargement on the south side of the same character and dimensions made on

the north side, would finally settle the laundry question, as far as construction is concerned. This extension could then be used for hand laundry purposes, for which at present we have no facilities. The present boiler and engine room can be used and will be ample for all machinery to be added, and for classification of soiled clothing. It would make a cheap and attractive addition, and give an opportunity for the employment of a large number of women to wash out by hand articles that are injured by machine washing, such as colored prints. We will need two more metallic washers the coming year, and a few, pieces of laundry machinery, which should be made a part of the laundry appropriation.

Sterilizer.

An appropriation of \$900 is required for the construction of a sterilizer. This machine must be steam tight to withstand a pressure of fifty pounds, and sufficiently large to take a bed complete. The appropriate location for this sterilizer will be in the laundry. Our present facilities for sterilizing large articles of furniture and bedding are crude and inefficient. With the apparatus in question, an opportunity will be afforded to sterilize the clothing and belongings of new admissions that come from infected localities, without embarrassment or expense and without damage.

Mechanical Stokers.

We have experimentally introduced the use of an automatic boiler stoker upon one of our stationary boilers in the steam station, and have had it in operation for three months. Although it has not been possible to give it a test of scientific accuracy, on account of using this boiler alone for a sufficient length of time, we are satisfied that it is not only an economical method of stoking, but, to a very large extent, it consumes the smoke, and thus rids us of a nuisance that is sometimes prominent. In view of this, I recommend that the Legislature be asked to appropriate a sufficient amount to apply these stokers to the remaining boilers — six in number — for which \$3,600 will be required.

Motors and Bakery.

The requirements of our bakery are sufficient to make a mixing machine desirable. Previous experience in a change from hand to machine mixing satisfies me that the result is better bread, and a saving in labor. The power used can be steam or electricity. I should recommend the latter. We also need a few motors to run kitchen

machinery and sewing machines in our workshops. I suggest that these various items be gathered into one for expediency, and that an appropriation be requested to obtain them.

Water Pipe to Garden.

The present water supply to the Garden Cottage was put in hurriedly several years since by the use of old pipe of one and two inch diameters. It has been entirely inadequate to supply all the garden needs. A proper pipe line to the garden should now be built of not less than five inch cast-iron pipe, that would supply a fire pressure, garden irrigation and domestic requirements.

Agricultural Drainage and Fencing.

We have several tracts of land that can not be very much improved until the subsoil is drained. We will require about 20,000 pieces of drain tile, and this amount can be placed by our working force the coming year. Some new farm fences are required, and for these several purposes an appropriation of \$600 will be required.

Books and Instruments.

For surgical apparatus, instruments of precision and scientific books, we should have an appropriation of \$500. Scientific apparatus not being allowed in the current estimates, our wants can only be supplied by special appropriation.

Our wants seem to be large, and it must be granted they are, and necessarily so. Our rapid growth has placed us in a few years where other State hospitals have had the opportunity of years to prepare for. We are almost an independent community, as far as internal operations are concerned, and require about the same facilities of a community of the same size besides the special needs of an institution.

Statistics.

The usual statistics will be presented in the appendix to the annual report in the forms adopted by the State Commission in Lunacy. Aside from showing the movement of the population, and a few other gross data, they are of uncertain value. In some instances they are positively misleading, and this in fact may be said of statistics usually presented in reports of hospitals for the insane. As an instance in the present report of this hospital, there are 659 admissions reported. As a matter of fact, the mass of these admissions were merely transfers of old cases from other hospitals. The sixty-nine reported recoveries fig-

ure insignificantly upon the basis of admissions as reported without this necessary explanation; whereas, computed upon the cases of generalized insanity of recent origin received from this hospital district, the showing is creditable.

The propriety of an analysis of the admissions to this hospital for the past year, for the foregoing reasons, can not be questionable. Of the 659 admissions, 409 were transfers from other hospitals and from county almshouses. Of cases received from the community under new commitments, forty-six were of long standing in which chronicity had been established before they were placed under treatment. Of those suffering from constitutional degeneracies of all kinds — of evolution and involution — upon whom incurability is indelibly stamped at the outset of the alienation, there were seventy. Of these 116 admissions it may be said that recovery to a fairly permanent normal mental condition is an anomaly, and is not anticipated. They receive the fostering care of the State as its legal wards, for the purpose chiefly of humane care and custody, and, as far as possible, the amelioration of their distressing symptoms. The remaining 134 admissions were of symptomatic and systematized insanities, in which the duration of the disease had not been sufficient to establish a degeneracy, and where recovery is logically possible.

The recoveries resulting from these 134 hopeful cases before the close of the hospital year were thirty-three. The remaining thirty-six recoveries were from cases admitted previous to October 1, 1893, and included as admissions in former reports. Of this number also eleven were discharged before recovery was complete and which are not included in the report as "recovered" but as "improved" or "unimproved." Six died either from the exhaustion incident to the insanity and its complications, or to intercurrent disease. Upon October 1, 1894, there were eighty-four remaining under treatment, of which a favorable issue may be expected in forty-nine.

The foregoing remarks may appear to some as an attempt to create a barrier between hopeful cases of insanity and those that have passed the expectancy of curability, or to depreciate the feature of our hospitals which the beneficent "State Care Act" was created to maintain — the equitable treatment of all the insane, without regard to their expectancy. In the sense that discrimination in the efforts for recovery by extraordinary and scientific attention to the hopeful class is made, this may be true, for professional economy in our present allowance of physicians demands it. But in the sense of humane treatment it is untenable. On the contrary, the higher hospital standard will certainly

elevate all departments of the hospital service, and the hopeful and hopeless alike will be benefited. Careful, observant, critical discrimination; eager watchfulness of all doubtful cases as individuals independent of gross classification, or unfavorable histories, or ante-hospital prognostications, will stimulate a careful observation of all cases under care with greater certainty than the "lump sum" methods so difficult to be avoided in large institutions.

Again reverting to statistics, attention is called to the mortality table in the appendix. In the present interest in tubercular disease, it is instructive to note the small percentage of deaths from pulmonary tuberculosis. Vital statistics of neighboring towns do not indicate regional or climatic exemption, and yet the small mortality from this dread disease as compared with some older institutions is phenomenal. Exemption is not due either to a favorable population, as it is largely drawn from the older residents of other institutions. The only rational explanation must be improved and generous hygienic conditions in construction, in the matter of individual space allowance and ample means of air change. Isolation of tubercular cases has thus far not been practicable. In several autopsies of patients that gave physical signs of pulmonary tuberculosis upon admission, but dying from other causes, cicatricial cavities have been found, showing that remission had occurred during hospital residence. The subject is certainly deserving of the additional research it will receive here.

With further experience in the present method of transferring patients to the hospital, we may reasonably hope that the class of patients who die from shock and exhaustion soon after admission, as the result of the journey, may be eliminated. It is a severe commentary upon the examining physician who certifies to an insane person who is physically unfit to be moved. Home treatment should be imperative in all cases of exhaustion, or where acute disease complicates the insanity, or in cases of unconsciousness or delirium where the cause has not been positively ascertained. There are examining physicians in this district whose service might be improved by a more careful consideration of the subject of insanity, but it is with satisfaction that I can report a progressive improvement in the character of certificates that are presented here. This may be largely if not wholly due to the judicial recognition of examiners and the requirement of filing their certificate of qualification in the office of the State Commission in Lunacy. Where it was formerly the rule it is now the exception that a certificate must be returned for correction.

Medical Service.

If I emphasize by reiteration what has repeatedly been maintained in relation to the construction and service of this hospital, that the scientific treatment of the insane is the highest function it has to subserve, it is justified by recent events. A branch of the profession allied to psychiatry has made serious charges against insane hospitals, that, if true, would sustain the belief that they were non-medical institutions, and merely places for custody of those persons whose alienism unfitted them for society at large. Fortunately these charges are only in small part true. Speaking for the State of New York, the recent State Care Act has necessitated the transfer of large numbers of incurable patients from almshouses to the State hospitals, and from one hospital to another. There has been a constant pressure for room to put the State Care Act into full effect. With the other hospitals, we have urged our construction to provide for that class of cases for which custodial care was the chief necessity. Hence, this feature of our hospital has received undue prominence under the prevailing state of circumstances. But notwithstanding these embarrassments, we have never lost sight of those objects so earnestly sustained by your board throughout the preliminary work here, recognized in Mr. Perry's plans, emphasized in the organization of the hospital, and finally carried into effect by an earnest, capable and enthusiastic medical staff. These objects may be briefly stated as the application of the most advanced and enlightened views in relation to the treatment of the insane; minute and precise clinical observation of cases; the acceptance of every opportunity afforded towards the solution of problems connected with the causation and pathology of insanity, and finally, with a view to applying all available means to the recovery and amelioration of the afflicted committed to our care. It is my belief that these objects are paramount in the insane hospitals of this country, despite the deliberate attestations of our misinformed brethren to the contrary. Here, particularly, we have been favored by your own loyal support, and by an architect whose sympathies and efforts have been harmoniously enlisted. The medical staff have been imbued with the objects of the institution, and have sustained them with their loyal efforts. I confidently assert that the clinical work is as carefully performed, as thoroughly recorded and digested here, as in any general hospital.

Closely associated with the clinical study of insanity is that of pathological and etiological research. It is maintained that these questions, mighty in themselves, could better be assigned to some separate

department of the State service; and this is undoubtedly true, if the State desires to add to its eleemosynary work that of scientific investigation. It may be well considered doubtful if the State government will look favorably upon this additional burden. It is also questionable if the results that could be obtained would far exceed previous efforts made in pathological work at one of the State hospitals at considerable expense to the State.

The usefulness of a common laboratory for all the State hospitals will depend entirely upon the personnel of its organization, and the same chances will thus have to be taken that each medical superintendent assumes in the appointment of his medical staff officers, with less chance of correcting errors. The temptation to make a central laboratory useful for the community in which it is situated and to near-by hospitals, to the exclusion of distant institutions, will not always be resisted. It will also reduce, if not dispossess, the individual hospitals of laboratory work, which is one of the strong inducements to young medical men to engage in hospital practice for temporary periods.

It is well to consider, also, that the best results in science have not emanated from public and paid work, but from voluntary efforts, and frequently from obscure sources. The brains of men can not be prodded to produce like the soil, but must be stimulated by an interest that needs more than a departmental service to maintain. The technical examination of nerve matter in a routine way in a central laboratory may produce some beautiful results as a fruit of exquisite technique, but conclusions based thereon will be thoroughly worthless except in a combined study of the clinical aspect of the case. Therefore, the physician who studies the cause and indications of disease from daily observation of the patient, must ascertain their relation to the morbid anatomy, as the only competent person to reach conclusions that will be of any value to the human race.

It is also well recognized at the present day that on account of the chemical and morphological changes that occur progressively in the cadaver, not only in the nerve cells but in their environment, prompt and rapid examination by well-known methods is required to obtain true microscopical pictures. If the preservative methods hitherto used for nerve tissue are found inadequate, as seems very likely, a central pathologist could only be made useful in all the State hospitals, when rapidity of transportation has been many times multiplied.

The relationship of pathological work proper, to the clinical examination of excretions, can only be broken to their detriment. The

necessity of frequent examination of body fluids, chemically and microscopically, is now so well recognized that its neglect is not excusable. A central laboratory can give no aid in these functions except as an instructor. It is doubtful then whether a central laboratory will be useful except as a coadjutor to the hospital laboratory; and it is far better to maintain the latter in a state of efficiency, increase the medical force sufficiently to permit a greater measure of pathological work, and keep the several departments of disease research together.

An effort has been made here to relieve the medical staff, as far as practicable, from clerical duties, in order to give them opportunity for substituting a closer observation and study of patients. Through the courtesy of your board, they have each been invited to contribute their observations on special lines of inquiry selected by themselves, to the annual report for transmission with it; and these notes and reports are appended herewith as a part of this report. The responsibility of each report has been assumed by the individual physician making it. It is not claimed that this exhibit will be remarkable for original research, but it will be an honest expression of some results from an organization still in its formative stage, and embarrassed by an incomplete classification, construction and equipment. The aim rather than a finished result is shown. *Transeat in exemplum.*

The evolution of our present hospital system of treatment and care of the insane has been progressing for two decades with quite an unchecked growth. To those interested and engaged in the care of the insane for that period, in full or in large part, it does not require the acuteness of perception recorded of the warder of the Scandinavian gods the subtlety of whose ear was so great that he could hear the grass growing in the meadows, and the wool on the backs of the sheep — to have this fact patent to them. Any claim which crowds these changes into the past few years is not properly endowed. Jack and the beanstalk can not be emulated in the conversion of our great institutions from indifferent to good, but the matured results must have had time for its growth and ripening, and the vital forces must have operated internally and have not been manipulated from external agencies.

Dr. Robert G. Cook reassumed the position of second assistant physician, upon his return from Europe, July first. His experience gained in institutions abroad has been of marked value to the hospital service. Dr. George G. Armstrong, who served as second assistant during Dr. Cook's absence, gave an excellent service and deserves our

thanks. Dr. Caroline L. Bristol was transferred to the Willard State Hospital service, and the vacancy was filled by the transfer of Dr. Caroline S. Pease from the Hudson River State Hospital. Dr. Flavius Packer was promoted from medical interne to fourth assistant physician, and Dr. R. H. Hutchings from fourth to third assistant physician. Drs. James Burton and Thomas C. Sawyer were appointed medical internes for a service of one year, under the new rules adopted by the Civil Service Commission. Dr. J. Montgomery Mosher, whose service began with the opening of the hospital in 1890 as first assistant physician, continues to give me invaluable support in all departments, but particularly in the medical work of the hospital. Mr. William C. Hall, the steward whose service also dates from the beginning of our practical work, continues a valuable officer in his department. I commend all members of the staff as efficient and faithful in the discharge of their duties.

The requirements of the service call for the addition of two members to the medical staff, for the Central Hospital Group. When this group is completed and occupied the coming year, it will have a population of more than 500 patients, and these will include all the recent and acute cases needing frequent medical visitation. It will be quite impossible for two physicians to render this service efficiently, and I ask that you petition the Legislature to correct this deficiency in our staff numbers.

An established regulation is the meeting of the medical officers in the hospital library, daily, during the hour following noon. At these meetings the experiences of the morning visitations are discussed with the medical superintendent; the daily written reports are reviewed and elaborated by discussion; interesting cases are presented for general consideration; new features of the service are offered to the staff for criticism, and the hour is filled with current medical topics. This diurnal association, with its formal requirements, seems now to be a necessary feature of the daily medical work.

The medical staff officers are incorporated in the Ogdensburg City Medical Association, which was noted for its active and progressive work previous to the establishment of the hospital. The union has resulted in mutual good, and the fortnightly meetings held alternately in the city and at the hospital sustain a lively interest in the hospital work on the part of the general profession, while it keeps the staff officers *en rapport* with current medical discussion.

A very much needed medical service, that is special to a degree than can not be expected from the medical staff, is dental and ophthalmological.

The requirements are not sufficiently constant to demand continuous service, but arrangement could be made whereby neighboring specialists might render this service acceptably and at a reasonable cost.

Fire Protection.

The fire department has had its organization completed during the year, and is now in an excellent working condition. A large credit for this result is due to the chief marshal, Dr. Mosher, who has been assisted by other members of the staff and by the employes of the hospital. A "Fire Manual" was accepted by the Board as a part of the hospital regulations, and it is now printed and placed in each room occupied by an employe. The Gamewell fire alarm system of the most approved design, with seventeen stations, has been installed, and each officer and employe is given a key to the alarm stations. The organization, in addition to the chief officers, consists of three hose companies, a hook and ladder company and the life saving corps. Drills are held fortnightly, and alarms are given without previous notice. The usual result is a complete working force, with hose and material in position, at the indicated station, in from two to five minutes after the first announcement of the station by the fire whistle. With the organization maintained at its present efficiency, and adequate hose and other conveniences provided, to which previous reference has been made, it does not seem possible that any great loss can again occur by fire destruction.

Electric Road.

We are now anticipating the construction of an electric road from Ogdensburg to the hospital buildings the coming season that will facilitate transportation in a marked degree and reduce the costs of visits of patients' friends. It is expected also to stimulate general visitors, but the agreement with the railroad company allows a much better supervision of visitors than now exists, and will thus compensate for the expected embarrassment.

Visitations.

The hospital has been visited during the year by the State Commission in Lunacy, members of the State Board of Charities, and by many other State officials. We have been gratified to receive visits from representatives of other States and countries interested in hospital construction. The general public have also retained their interest in the institution, judging from the number that attend upon the visiting days.

Acknowledgments.

We are indebted to the following newspapers and journals of northern New York for contributing one or more copies of their publications for the use of patients : Adirondack News, Antwerp Gazette, Baldwinsville Gazette, Canton Commercial Advertiser, Carthage Republican, Chateaugay Record, Conglomerate, East Syracuse News, Essex County Republican, Fayetteville Weekly Recorder, Franklin Gazette, Glens Falls Daily News, Gouverneur Free Press, Jefferson County Journal, Lakeside Press, Lowville Journal and Republican, Malone Palladium, Mexico Independent, Northern Christian Advocate, Norwood News, Ogdensburg Daily Journal, Oswego Daily Times, Potsdam Recorder, Potsdam Courier and Freeman, Cape Vincent Eagle, Elizabethtown Post, Fort Covington Sun, Fulton Patriot, Glens Falls Morning Star, Lewis County Leader, Malone Farmer, Manlius Eagle, Northern Tribune, Ogdensburg Advance, Ogdensburg Daily Journal, Plattsburgh Republican, Sandy Creek News, Skaneateles Democrat, St. Lawrence Republican, Syracuse Herald, Syracuse Standard (two copies), Syracuse Sunday Times, Tully Times, Watertown Post, St. Lawrence Herald, St. Lawrence Plaindealer, Syracuse Journal, Syracuse Weekly Express, Ticonderoga Sentinel, Union Gospel News, Watertown Advocate, Watertown Herald, Wesleyan Methodist.

The publishers of the New York Medical Journal generously furnish a copy of this journal for the medical staff without charge.

We have also received from the New York Recorder 100 chromolithographs for framing ; from A. E. Smith, Esq., photographs and lithographs at various times; illustrated papers and books at several times from Hon. W. L. Proctor; a large package of bound volumes from Mrs. Amos Egert; illustrated papers and magazines from Mrs. L. D. Ralph, H. N. Thompson, Mrs. F. E. Forsythe, Mrs. J. G. Averell, Miss Georgie Benedict, Mrs. A. R. Porte, Mr. C. Cooper, Mr. C. J. Locke, Miss M. H. Stark and Rev. Father Conroy, and from the latter also a donation of five dollars for Christmas festivities.

The transactions of the State Medical Society were presented to the hospital library by Dr. F. C. Curtis; ten glasses of jelly from Mrs. L. DeV. Hoard, scrap books and pictures from Miss Ada Gray.

A very charming donation, which was frequently and bountifully made during the winter and spring months, was baskets of cut flowers from Miss M. Hanna, of Ogdensburg, and upon several occasions also from Mrs. Charles Westbrook. Lacking, as we do, a conservatory, these beautiful messengers were a source of great comfort to our sick,

and were eagerly welcomed. On Thanksgiving Day Mrs. Thomas Lawrence sent our patients a beautiful supply of chrysanthemums, and cut flowers on different occasions.

The entertainments for patients were largely confined to the summer months and to outdoor sports, on account of our lack of an amusement hall. These consisted of base-ball games, of which fourteen were played upon the hospital oval; a number of picnics and outings for convalescents, and notably two picnics requiring a night's outing, for which our sincere thanks are due Mr. Charles Snyder, of Macomb, N. Y., who allowed our patients to invade his blackberry farm and relieve it of its abundant fruit, and to Mr. Andrew Tuck, of Lisbon, for a similar privilege during the apple season. The annual field-day upon July third was enjoyed by all but bed-ridden patients, and was an unusual success. Upon this occasion a number of our friends from the city aided us in making the occasion enjoyable. Our acknowledgments are tendered the Maple City Athletic Club, for giving our patients free entry to their annual field-day, and providing them with safe accommodations. The Ogdensburg annual fair and the several circuses of the season were largely attended by patients. There were thirty-one patients' socials, with dancing, held in the infirmary day room; several very successful minstrel entertainments, arranged by hospital employes; four musical entertainments and several organ recitals. Popcorn and candy parties were a frequent source of diversion in the afternoon during the winter months, in the large kitchens. Rev. M. W. Chase, now of Oswego, N. Y., has our sincere thanks for a delightful stereopticon entertainment and lecture on the Columbian Exposition. During the summer evenings, also, occasional band concerts were held about the hospital buildings. We are under obligation to Mrs. W. N. Bell and Mrs. R. E. Waterman for musical services, and to Rev. Dr. Morrison for an address upon the occasion of the graduating exercises of the training school. Also, to the Cathedral choir for musical services on the Sundays when Catholic services were held for patients.

The construction of an artificial lake near Group No. 3, that had for its prime object the reduction of grading expenditure, is expected to add very largely to the winter amusements for patients, by providing a safe place for skating, and for the practice of "curling."

To the people of Ogdensburg and vicinity we are particularly indebted for the spirit of friendliness and good-will that is manifested by them for the hospital and its success, at every favorable opportunity. The encouragement that is given to a work of this nature by such an environment, is an important element in gaining desirable results. To

the medical profession particularly, we are under frequent obligation; and in this connection particular mention is made of Drs. B. F. Sherman, W. N. Bell, S. E. Brown and Grant C. Madill, who have given their services in consultation and the examination of patients during the year without remuneration. Our thanks are due Dr. John C. Sherman for a lecture to the training school for nurses.

To the Rev. Drs. Morrison and Miller, Rev. Father Conroy, Rev. W. D. Chase, Rev. J. G. Rogers, and Rev. A. M. Prentice, we are again indebted for religious ministrations. Also to Olin B. Coit for a sermon.

To my medical associates upon the staff, who have so loyally supported me during this trying year, I am sincerely grateful, as well as to the steward and all the nurses, attendants, and other employes who have given their earnest efforts for the hospital's welfare.

To those of you, gentlemen of the board, who, by frequent visitation, counsel and support, have aided me and have relieved the stress of responsibility that sometimes crowds too heavily, I again render acknowledgment. As time adds the quota of years that make the span of life, we rely more and more upon that guidance that seems the only surety of ultimate success, and with the hope that our future efforts may receive His blessing, we enter the work of another year.

Respectfully submitted,

P. M. WISE,
Medical Superintendent.

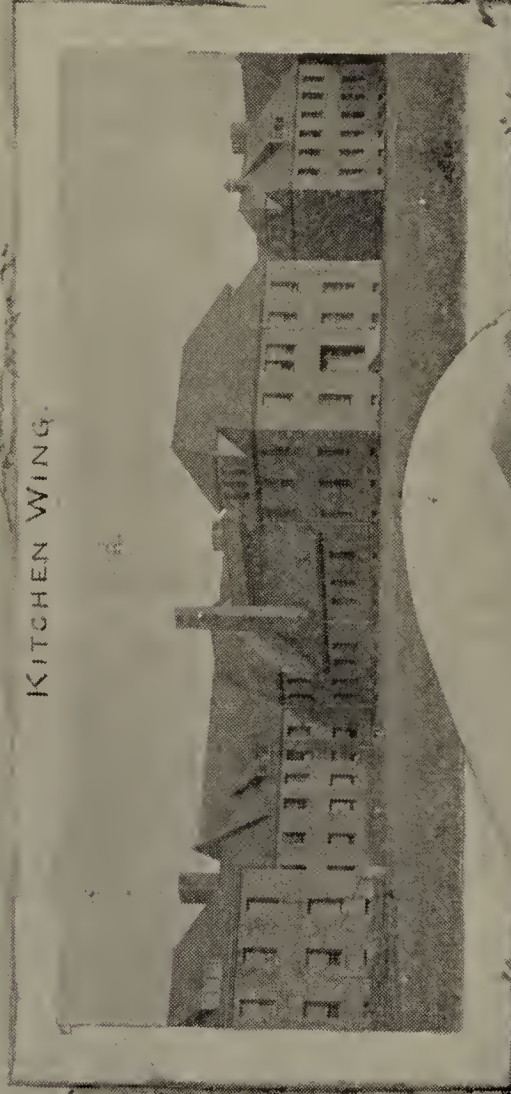


A P P E N D I X

CONTAINING

Statistical Tables, Steward's Report, Laws, Rules and
Regulations and Medical Reports.

KITCHEN WING.



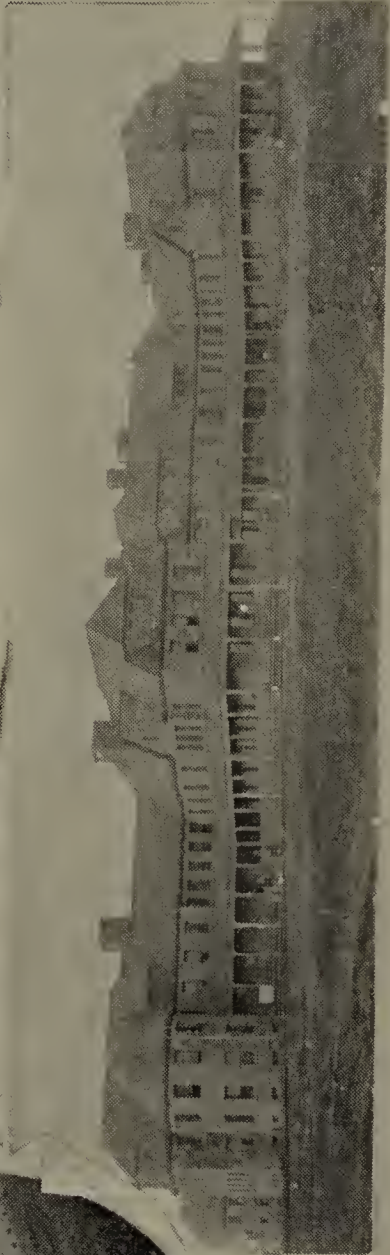
WARD BUILDING.



ADMINISTRATION AND WARD BUILDING.



SOUTH FACADE.



GROUP NO. THREE.

STATISTICAL TABLES.

TABLE No. I.

Showing movement of population for the year ending September 30, 1894.

	Men.	Women.	Total.
Remaining October 1, 1893.....	323	365	688
Admitted during year ending September 30, 1894	306	353	659
Total number under treatment during year	629	718	1,347
Daily average population.....	429	504	933
Discharged during the year:			
As recovered	34	35	69
As not recovered.....	33	51	84
Died.....	53	41	94
Total number discharged during year,	120	127	247
Remaining October 1, 1894	509	591	1,100

TABLE No. II.

Financial Statement, October 1, 1894.

Cash on hand October 1, 1893* \$4 57

Receipts during the year.

From State treasury for maintenance ...	\$206,768 37
From private patients.....	1,617 29
From reimbursing patients	2,771 71
From all other sources	915 19
Total receipts during the year.....	\$212,077 13

* After September vouchers were paid. Heretofore the financial statement has not included the preceding September.— P. M. W.

Disbursements during the year.

For officers' salaries	\$14,166 66
For wages	62,785 78
For provisions and stores.....	55,775 65
For ordinary repairs.....	5,024 07
For farm and grounds	6,312 31
For clothing.....	13,696 18
For furniture and bedding.....	6,724 64
For books and stationery.....	1,159 82
For fuel and light.....	32,294 25
For medical supplies.....	2,012 71
For miscellaneous expenses	4,540 97
For transportation.....	4,386 17

Total disbursements during the year.....	\$208,879 21
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Balance remaining on hand October 1, 1894..	\$3,197 92
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Weekly per capita cost on current expenditure, inclusive of clothing and officers' salaries	\$4 30
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TABLE No. III.

Showing assigned causes of insanity in cases admitted during the year

	DURING THE YEAR			SINCE DECEMBER 9, 1890.		
	Men.	Women.	Total	Men.	Women.	Total.
Moral:						
Domestic trouble (including loss of friends) .....	....	16	16	18	51	69
Adverse circumstances (including business anxieties and pecuniary difficulties).....	12	5	17	30	12	42
Mental anxiety and worry (not included in above) and overwork ..	19	14	33	29	27	56
Religious excitement	1	2	3	6	15	21
Love affairs (including seduction) ..	1	4	5	7	14	21
Fright and nervous shock.....	....	2	2	3	9	12
Physical:						
Intemperance	20	7	27	92	15	107
Sexual excess.....	3	....	3	6	1	7
Venereal disease.....	8	1	9	17	5	22
Masturbation.....	6	...	6	27	1	28
Sunstroke	5	1	6	16	4	20
Accident or injury ...	10	6	16	44	11	55
Pregnancy .....	....	1	1	....	5	5
Parturition and puerperal state ....	...	5	5	....	22	22
Lactation .....	....	1	1	....	4	4
Change of life ....	....	9	9		26	26
Fevers	1	2	3	7	7	14
Privation and overwork	1	12	13	20	41	61
Epilepsy (including catalepsy and chorea)	19	22	41	50	52	102
Disease of skull and brain	1	3	4	12	9	21
Old age	4	9	13	7	16	23
Exophthalmic goitre.....	1	1	2	1	4	5
Epidemic influenza.....	5	8	13	23	24	47
Abuse of drugs.....	....	5	5	1	8	9
Other bodily disorders and chronic ill health.....	21	42	63	42	88	130
Loss of special sense. ....	....	....	....	1	...	1
Uræmic poisoning .....	....	....	....	1	....	1
Heredity	17	14	31	48	43	91
Congenital defect	3	13	16	6	17	23
Unascertained	148	148	296	393	383	776
Not insane .....	....	....	....	1	....	1
Total	306	353	659	908	914	1,822

TABLE No. IV.

Showing forms of insanity of those admitted, recovered and died during the year.

	DURING THE YEAR.			SINCE DECEMBER 9, 1890.		
	Admitted.	Recovered.	Died.	Admitted.	Recovered.	Died.
Mania, acute	45	34	7	229	115	19
Mania, sub-acute	15	4	2	63	23	3
Mania, recurrent	5	1	....	12	3	....
Mania, chronic	90	1	7	240	4	24
Melancholia, acute	58	24	6	205	77	17
Melancholia, sub-acute ...	16	4	1	59	17	2
Melancholia, chronic	47	....	7	124	1	11
Alternating (circular) insanity	2	....	....	3	....	....
General paralysis	31	...	15	65	1	32
Dementia, primary	4	1	5	33	4	19
Dementia, terminal	270	....	38	615	....	99
Epilepsy	40	...	3	85	1	7
Imbecility	19	....	2	53	....	4
Idiocy	17	....	1	24	....	2
Not insane .....	....	....	....	12	....	....
Total	659	69	94	1,822	246	239

TABLE No. V.

Showing the number and percentage of recoveries and deaths, based on the average daily population since December 9, 1890.

YEARS.	Average daily population.	Recoveries	Percentage.	Deaths.	Percentage.
1891	227	29	13	28	12
1892	486	77	16	42	8.5
1893	632	71	11	75	12
1894	933	69	7.5	94	10

TABLE No. VI.

Showing causes of death of those who died during the year.

	DURING THE YEAR.			SINCE DECEMBER 9, 1890.		
	Men.	Women.	Total.	Men.	Women.	Total.
Cerebral diseases:						
Apoplexy and paralysis	1	4	5	9	9	18
Epilepsy and convulsions .....	....	1	1	2	3	5
General paralysis	11	2	13	25	2	27
Maniacal and melancholic exhaustion and decay	3	6	9	8	13	21
Inflammation and other diseases of the brain, softening, tumors, etc..	2	5	7	10	11	21
Thoracic diseases:						
Inflammation of the lungs, pleuræ and bronchi.	13	5	18	25	10	35
Pulmonary gangrene .....	....	....	....	....	1	1
Diseases of the heart and blood vessels	5	2	7	10	9	19
Abdominal diseases:						
Inflammation and ulceration of stomach, intestines and peritoneum	3	1	4	7	8	15
Dysentery and diarrhœa	2	2	4	3	3	6
Diseases of the kidneys	2	3	5	10	6	16
Diseases of bladder and prostate ...	....	....	....	2	....	2
Diseases of the liver .....	....	1	1	1	2	3
Tumors, strictures, herniæ .....	....	....	....	1	1	2
General diseases:						
Tuberculosis, including pulmonary phthisis	7	3	10	12	7	19
Epidemic influenza .....	....	2	2	1	2	3
Typhoid fever	1	....	1	2	....	2
Purpura hæmorrhagica .....	....	....	....	....	1	1
Progressive pernicious anæmia .....	....	....	....	1	....	1
Erysipelas .....	....	....	....	2	....	2
Senile gangrene .....	....	1	1	....	1	1
Debility of old age	1	3	4	4	9	13
Accident .....	....	....	....	1	2	3
Suicide	2	....	2	3	....	3
Total	53	41	94	139	100	239

TABLE No. VII.

Showing the first and subsequent admissions of patients admitted during the year.

NUMBER OF ADMISSIONS.	CASES ADMITTED.			TIMES PREVIOUSLY DISCHARGED RECOVERED.		
	Men.	Women.	Total.	Men.	Women.	Total.
First.....	283	342	625	.....	.....	.....
Second.....	21	10	31	7	5	12
Third.....	1	1	2	.....	1	1
Fourth or more	1	.....	1	2	.....	2

TABLE No. VIII.

Showing hereditary tendency to insanity in cases admitted during the year.

	DURING THE YEAR.			SINCE DECEMBER 9, 1890.		
	Men.	Women.	Total.	Men.	Women.	Total.
Paternal branch	24	14	38	73	54	127
Maternal branch.....	23	32	55	85	87	172
Paternal and maternal branch	4	10	14	6	18	24
Collateral branches	26	33	59	74	76	150
No hereditary tendency.....	76	77	153	288	245	533
Unascertained	153	187	340	382	434	816
Total.....	306	353	659	908	914	1,822

TABLE No. IX.

Showing civil condition of those admitted during the year.

	DURING THE YEAR.			SINCE DECEMBER 9, 1890.		
	Men.	Women.	Total.	Men.	Women.	Total.
Single.....	159	158	317	449	383	832
Married	118	125	243	367	377	744
Widowed	21	64	85	71	134	205
Divorced		1	1	1	6	7
Unascertained.....	8	5	13	20	14	34
Total.....	306	353	659	908	914	1,822

TABLE No. X.

Showing degree of education of those admitted during the year.

	DURING THE YEAR.			SINCE DECEMBER 9, 1890.		
	Men.	Women.	Total.	Men.	Women.	Total.
Collegiate	4	1	5	14	2	16
Academic	13	16	29	40	57	97
Common school	128	156	284	434	430	864
Reads and writes	13	11	24	13	11	24
Reads only.....	18	19	37	57	64	121
No education.....	27	48	75	62	93	155
Unascertained.....	103	102	205	288	257	545
Total.....	306	353	659	908	914	1,822

TABLE No. XI.

Showing the duration of insanity previous to admission, and the period under treatment of patients discharged recovered during the current year and since December 9, 1890.

DURATION PREVIOUS TO ADMISSION.	YEAR ENDING SEPTEMBER 30, 1894.			SINCE DECEMBER 9, 1890.		
	Men.	Women.	Total.	Men.	Women.	Total.
Under one month	14	13	27	61	40	101
One to three months.....	7	12	19	29	34	63
Three to six months	4	6	10	11	18	29
Six to nine months	2	3	5	7	8	15
Nine months to one year.....	1	.....	1	2	4	6
One year to eighteen months.....	.....	.....	.....	5	1	6
Eighteen months to two years....	1	.....	1	2	3	5
Two to three years.....	1	.....	1	1	3	4
Four to five years.....	.....	.....	.....	2	.....	2
Five to ten years.....	.....	.....	.....	1	.....	1
Ten to twenty years	1	.....	1	1	1	2
Not insane*.....	.....	.....	.....	10	2	12
Unascertained.....	3	1	4	9	3	12
Total.....	34	35	69	141	117	258

PERIOD UNDER TREATMENT.						
Under one month.....	1	1	2	9	1	10
One to three months.....	6	11	17	37	35	72
Three to six months.....	13	11	24	47	46	93
Six to nine months	6	6	12	19	21	40
Nine months to one year.....	4	3	7	9	5	14
One year to eighteen months.....	1	.....	1	10	3	13
Eighteen months to two years....	1	1	2	3	2	5
Two to three years.....	2	2	4	2	3	5
Not insane*.....	.....	.....	.....	5	1	6
Total.....	34	35	69	141	117	258

* Includes cases of alcoholism, opium habit, etc.

TABLE No. XII.

Showing the duration of insanity previous to admission, and the period under treatment of patients discharged not recovered during the current year and since December 9, 1890.

DURATION PREVIOUS TO ADMISSION.	YEAR ENDING SEPTEMBER 30, 1894.			SINCE DECEMBER 9, 1890.		
	Men.	Women.	Total	Men.	Women.	Total.
Under one month.....	4	7	11	21	16	37
One to three months.....	3	2	5	19	8	27
Three to six months.....	3	1	4	8	9	17
Six to nine months.....	1	.....	1	5	2	7
Nine months to one year.....	2	.....	2	8	2	10
One year to eighteen months. ...	1	1	2	5	9	14
Eighteen months to two years....	.....	2	2	2	4	6
Two to three years.....	3	5	8	7	8	15
Three to four years.....	1	1	2	7	1	8
Four to five years.....	2	2	4	4	3	7
Five to ten years.....	1	4	5	4	7	11
Ten to twenty years	2	3	5	3	6	9
Twenty to thirty years.	6	4	10	12	5	17
Over thirty years.....	.....	6	6	.....	6	6
Not insane* . . . . .	.....	.....	.....	5	1	6
Unascertained.....	4	13	17	14	20	34
Total.....	33	51	84	124	107	231

PERIOD UNDER TREATMENT.

Under one month.....	2	.....	2	9	2	11
One to three months.....	6	8	14	28	22	50
Three to six months.....	8	19	27	27	34	61
Six to nine months.....	8	6	14	21	13	34
Nine months to one year.....	2	2	4	13	10	23
One year to eighteen months. ...	1	2	3	8	5	13
Eighteen months to two years....	3	5	8	8	7	15
Two to three years.	3	6	9	5	10	15
Three to four years.....	.....	3	3	.....	3	3
Not insane* . . . . .	...	.....	.....	5	1	6
Total.....	33	51	84	124	107	231

* Includes cases of alcoholism, opium habit, etc.

TABLE No. XIII.

Showing the duration of insanity previous to admission, and the period under treatment of patients who died during the current year and since December 9, 1890.

DURATION PREVIOUS TO ADMISSION.	YEAR ENDING SEPTEMBER 30, 1894.			SINCE DECEMBER 9, 1890.		
	Men.	Women.	Total.	Men	Women.	Total.
Under one month.	4	4	8	14	8	22
One to three months.	5	2	7	18	8	26
Three to six months.	6	.....	6	11	4	15
Six to nine months.	3	1	4	6	1	7
Nine months to one year.	2	4	6	7	9	16
One year to eighteen months.	1	4	5	2	6	8
Eighteen months to two years.	1	.....	1	8	1	9
Two to three years.	7	4	11	11	9	20
Three to four years.	2	5	7	6	6	12
Four to six years.	1	4	5	3	7	10
Six to ten years.	5	2	7	9	4	13
Ten to twenty years.	4	3	7	9	7	16
Twenty years and over.	2	2	4	6	8	14
Unascertained.	10	6	16	29	22	51
Total.	53	41	94	139	100	239

PERIOD UNDER TREATMENT.

Under one month.	8	7	15	28	13	41
One to three months.	4	5	9	13	18	31
Three to six months.	11	13	24	31	21	52
Six to nine months.	1	4	5	13	11	24
Nine months to one year.	4	1	5	11	8	19
One year to eighteen months.	6	5	11	12	14	26
Eighteen months to two years.	8	2	10	14	8	22
Two to three years.	4	2	6	9	5	14
Three to four years.	6	2	8	6	2	8
Six to ten years.	1	.....	1	1	.....	1
Unascertained. . . . .	.....	.....	.....	1	.....	1
Total.	53	41	94	139	100	239

TABLE No. XIV.

Showing ages of those admitted during the year.

	DURING THE YEAR.			SINCE DECEMBER 9, 1890.		
	Men.	Women.	Total.	Men.	Women.	Total.
From 10 to 15 years.....	1	2	3	3	3	6
From 15 to 20 years.....	3	8	11	30	27	57
From 20 to 25 years.....	17	18	35	60	59	119
From 25 to 30 years.....	29	28	57	81	92	173
From 30 to 40 years.....	97	86	183	246	207	453
From 40 to 50 years.....	64	82	146	196	210	406
From 50 to 60 years.....	43	62	105	141	164	305
From 60 to 70 years.....	30	34	64	91	88	179
From 70 to 80 years.....	16	23	39	46	46	92
From 80 to 100 years....	6	10	16	14	18	32
Total.....	306	353	659	908	914	1,822

TABLE No. XV.

Showing ages of those discharged recovered during the year.

	DURING THE YEAR.			SINCE DECEMBER 9, 1890.		
	Men.	Women.	Total.	Men.	Women.	Total.
From 10 to 20 years	2	2	4	10	6	16
From 20 to 30 years.....	7	10	17	36	36	72
From 30 to 40 years.....	6	7	13	19	27	46
From 40 to 50 years	10	11	21	36	25	61
From 50 to 60 years.....	4	3	7	22	15	37
From 60 to 70 years.	4	2	6	7	4	11
From 70 to 80 years... ..	1	....	1	1	2	3
Total.....	34	35	69	131	115	246

TABLE No. XVI.

Showing ages of those who died during the year.

	DURING THE YEAR.			SINCE DECEMBER 9, 1890.		
	Men.	Women.	Total.	Men.	Women.	Total.
From 10 to 15 years.....					1	1
From 15 to 20 years.....		1	1		1	1
From 20 to 25 years.....	1	2	3	2	5	7
From 25 to 30 years.....		5	5	1	8	9
From 30 to 35 years.....	3	2	5	10	4	14
From 35 to 40 years.....	5	3	8	17	7	24
From 40 to 50 years.....	13	11	24	32	18	50
From 50 to 60 years.....	15	7	22	29	25	54
From 60 to 70 years.....	6	6	12	22	13	35
From 70 to 80 years.....	7	4	11	19	10	29
From 80 to 100 years.	3		3	7	8	15
Total.....	53	41	94	139	100	239

TABLE No. XVII.

Showing alleged duration of insanity previous to admission in those admitted during the year.

	Men.	Women.	Total.
Under one month	22	29	51
One to three months.....	25	21	46
Three to six months	17	15	32
Six to nine months ..	14	12	26
Nine months to one year.....	4	1	5
One year to eighteen months.....	13	12	25
Eighteen months to two years	7	3	10
Two to three years.....	19	15	34
Three to four years.....	14	25	39
Four to five years.....	24	29	53
Five to ten years	64	93	157
Ten to fifteen years..	34	37	71
Fifteen to twenty years.....	16	19	35
Twenty to thirty years.....	10	18	28
Thirty years and upwards.....	4	16	20
Unascertained.....	19	8	27
Total.....	806	353	659

TABLE No. XVIII.

Showing period of residence in hospital of those remaining under treatment September 30, 1894.

	Men.	Women.	Total.
Under one month .....	.....	7	7
One to three months.....	19	26	45
Three to six months	5	25	30
Six to nine months	24	7	31
Nine months to one year.....	26	6	32
One year to eighteen months.....	39	32	71
Eighteen months to two years.....	20	21	41
Two to three years.....	42	43	85
Three to four years.....	60	53	113
Four to five years... ..	28	59	87
Five to ten years.....	112	155	267
Ten to fifteen years.....	65	86	151
Fifteen to twenty years.....	34	31	65
Twenty to thirty years.....	29	24	53
Thirty years and upwards	6	16	22
Total.....	509	591	1,100

TABLE No. XIX.

Showing the occupation of those admitted during the year.

	DURING THE YEAR.			SINCE DECEMBER 9, 1890.		
	Men.	Women.	Total	Men.	Women.	Total.
Professional :						
Clergy, military and naval officers, physicians, lawyers, architects, artists, authors, civil engineers, surveyors, etc.....	6	1	7	24	1	25
Commercial :						
Bankers, merchants, accountants, clerks, salesmen, shopkeepers, ste- nographers, typewriters, etc.....	33	2	35	74	8	82
Agricultural and pastoral :						
Farmers, gardeners, herdsman, etc.	50	....	50	212	4	216
Mechanics at outdoor vocations :						
Blacksmiths, carpenters, engine-fit- ters, sawyers, painters, police, etc.	50	....	50	129	....	129
Mechanics, etc., at sedentary vocations:						
Shoemakers, bookbinders, composi- tors, weavers, tailors, bakers, etc.	21	...	21	84	3	87
Domestic service :						
Waiters, cooks, servants, etc.....	9	127	136	22	299	321
Educational and higher domestic duties:						
Governesses, teachers, students, housekeepers, nurses, etc	2	135	137	7	411	418
Employed in sedentary occupation :						
Tailoresses, seamstresses, bookbind- ers, factory workers	5	17	22	5	37	42
Prostitutes .....	....	....	...	....	2	2
Laborers	93	....	93	274	...	274
No occupation.....	16	39	55	35	92	127
Unascertained.....	21	32	53	42	57	99
Total.....	306	353	659	908	914	1,822

TABLE No. XX.

Showing the nativity of patients admitted during the year.

	DURING THE YEAR.			SINCE DECEMBER 9, 1890.		
	Men.	Women.	Total.	Men.	Women.	Total.
Belgium.....	1	....	1	2	....	2
Bohemia.....	1	....	1	1	1	2
Canada.....	20	15	35	58	63	121
Bavaria.....	2	....	2	2	....	2
England.....	11	6	17	22	17	39
France.....	2	2	4	3	2	5
Germany.....	17	38	55	46	62	108
Hungary.....	3	1	4	3	1	4
Ireland.....	43	80	123	113	164	277
Italy.....	....	1	1	2	1	3
Norway.....	1	...	1	1	....	1
Poland.....	....	....	....	2	3	5
Scotland.....	1	1	2	2	6	8
Russia.....	7	2	9	7	3	10
Sweden.....	1	1	2	1	1	2
Switzerland.....	2	....	2	3	...	3
United States... ..	157	178	335	549	506	1,055
Spain.....	1	....	1	1	....	1
Wales.....	....	2	2	2	2	4
West Indies.....	1	1	2	1	1	2
Born on shipboard.....	....	....	...	....	1	1
Unascertained.....	35	25	60	87	80	167
Total	306	353	659	908	914	1,822

TABLE No. XXI.

Showing residence by counties of patients admitted during the year.

Counties.		Counties.	
Albany.....	2	Oswego.....	46
Clinton.....	33	Queens.....	25
Columbia.....	13	Rensselaer.....	57
Dutchess.....	19	Richmond.....	3
Erie.....	3	Rockland.....	3
Essex.....	23	St. Lawrence.....	33
Franklin.....	23	Suffolk.....	4
Greene.....	1	Ulster.....	7
Jefferson.....	62	Warren.....	3
Kings.....	10	Washington.....	10
Lewis.....	22	Westchester.....	45
New York.. .	16	State patients.....	45
Niagara.....	1		
Oneida.....	14	Total	659
Onondaga.....	136		

TABLE No. XXII.

Showing residence by counties of patients remaining under treatment
September 30, 1894.

COUNTIES.	Men.	Women.	Total.
Albany .....	.....	2	2
Clinton	27	43	70
Columbia	4	6	10
Dutchess.	6	10	16
Erie	2	1	3
Essex.	17	19	36
Franklin	14	23	37
Greene.....	1	.....	1
Jefferson	58	56	114
Kings.	4	6	10
Lewis.....	36	26	62
New York	9	7	16
Niagara.....	1	.....	1
Oneida.....	6	7	13
Onondaga.	106	129	235
Oswego	66	89	155
Queens.....	3	18	21
Rensselaer	15	30	45
Richmond	2	1	3
Rockland	1	2	3
St. Lawrence	60	69	129
Suffolk.....	.....	2	2
Ulster	5	2	7
Warren.	2	8	10
Washington.....	4	5	9
Westchester.....	29	12	41
State patients	31	18	49
Total	509	591	1,100



ARTIFICIAL LAKE, GROUP NO. THREE.

Report of the Steward.

To the Medical Superintendent :

The report of the farm and garden products, live stock on hand, the classification and summary for maintenance, steward's sales and articles manufactured and repaired, for the year ending September 30, 1894, is herewith respectfully submitted.

W. C. HALL,
Steward.

Farm Products.

Barley, bushels.....	110	Milk, gallons.....	48,225
Beef, dressed, pounds...	20,048	Mangel wurzel, bushels...	2,000
Beans, bushels	50	Oats and peas, bushels...	255
Butter, pounds.....	52	Oats and barley, bushels,	750
Carrots, bushels	300	Oats, bushels.....	1,500
Chickens, dressed, pounds,	197	Peas, bushels... ..	55
Corn in ear, bushels.....	300	Potatoes, bushels	3,500
Corn fodder, tons.....	200	Pork, pounds	42,149
Eggs, dozen.....	539	Rye, bushels.....	625
Hay, tons.....	175	Straw, tons	100
Lambs, dressed, pounds...	292	Veal, dressed, pounds	115

Garden Products.

Apples, bushels.....	264	Crab apples, bushels	3
Asparagus, bunches.....	272	Cucumbers, bushels	123
Beans, string, bushels	85	Cucumbers, ripe, dozen....	19
Beans, lima, bushels.....	20	Egg plant, dozen	46
Beets, bushels.....	55	Grapes, pounds.....	80
Beets, bunches	229	Lettuce, bushels.....	150
Cabbage, heads.....	2,988	Melons, musk, number....	1,120
Cauliflower, heads	327	Melons, water, number	425
Carrots, bushels	810	Mangel wurzels, bushels...	
Celery, heads	6,086	Onions, bunches.....	6,642
Corn, sweet, bushels.....	96	Onions, bushels.....	357
Corn, sweet, dozen.....	1,808	Onions, sets, bushels.....	3
Corn, pop, bushels	24	Peas, bushels.....	199

Parsnips, bushels	140	Summer savory, pounds ...	146
Parsley, bunches	1,687	Salsify, bushels	90
Pie plant, bunches	1,019	Strawberries, quarts	429
Peppers, red, bushels	3	Spinach, bushels	143
Potatoes, bushels	550	Squash, summer, bushels ...	62
Pumpkins	89	Squash, hubbard, bushels ..	666
Radishes, bunches	3,565	Tomatoes, dozen	123
Radishes, winter, bushels ..	22	Tomatoes, bushels	304
Sage, pounds	523	Turnips, bushels	455

Live Stock and Poultry on hand September 30, 1894.

Boar	1	Lambs	14
Bulls	2	Oxen	2
Calves	5	Pigs	94
Chickens	50	Shoats	66
Colts	5	Sheep	15
Cows	92	Stag	1
Heifers, two years old	5	Steer	1
Hens	75	Breeding sows	12
Hogs	60	Stallion	1
Horses	27	Turkeys	40

Articles Manufactured in Work Shop.

Base ball fixtures, pieces ...	6	Mattresses, hair, single	730
Brooms	1,253	Mattresses, hair, double ...	41
Brush brooms	272	Mattresses, hair, strong	23
Brushes	248	Ottomans upholstered	31
Chairs covered, barber	11	Pillows, feather	651
Chair cushions	5	Pouches, leather	1
Canvass bag	1	Saddle girths	1
Hassocks	18	Shoes, leather, pairs	2
Harness straps	65	Shoes, canvas, pairs	13
Harness lines, pairs	1	Settees recaned	14
Lounges upholstered	2	Strong blankets	10
Mats, brush, door	54	Sweat collars and pads ...	25

Articles Mended.

Garments mended in the sewing rooms	15,763
Garments mended in the tailor shop	314
Hose mended in the sewing rooms	3,419
Articles mended in the work shop	1,153

Garments made in Tailor Shop.

Aprons	130	Vests	361
Caps	9	Overalls	16
Coats	271	Strong suits.....	37
Pants	324	Combination suits	24

Articles made in Sewing Rooms.

Aprons	1,841	Mittens, cloth and yarn....	47
Aprons, canvas.....	168	Neckties, hemmed	104
Blankets, hemmed	1,501	Napkins, hemmed	412
Blankets, strong.....	26	Night dresses	1,007
Bedspreads	964	Night shirts	116
Bibs	24	Pants, pairs.....	16
Breadcloths	2	Pillow cases	3,585
Coffee strainers.....	12	Pillow shams.....	70
Chemise	1,557	Pot holders	2
Caps, cooks.....	18	Protectors	8
Caps, night	23	Rugs.....	127
Cushions	10	Shirts	1,069
Coats, cooks	51	Sheets.....	3,862
Curtains, hemmed	470	Sheets, protection	7
Curtains, awning	2	Skirts	1,232
Combination suits	7	Stand covers.....	50
Clothes bags	200	Shrouds	22
Coffee sacks.....	26	Slippers, cloth and knit....	48
Carpet rags, balls.....	912	Stockings, knit.....	37
Dresses.....	1,440	Suspenders.....	239
Dresses, strong.....	33	Table cloths	383
Drawers, pairs	1,381	Tidies	9
Doylies	5	Towels	3,454
Elastics	72	Ticks, straw.....	50
Frills	56	Ticks, pillow.....	665
Fly nets.....	3	Tray cloths	1
Handkerchiefs.....	1	Tapes sewed on	1,186
Lambrequins	3	Waists, under.....	27
Mattress covers	309	Waists, shirt.....	13
Mattress ticks.....	519	Waists, blouses.....	1
Matts	14	Waste baskets, lined	1

Inventory of Articles of Maintenance on Hand September 30, 1894.

Pitchers, four quart.....	47	Large tin milk pails.....	2
Butter dishes	90	Two quart tin pans.....	12
Soup bowls	340	Coffee strainers.....	5
Granite bowls.....	72	Steelyards, pair	1
Sauce plates	706	Vinegar faucets	3
Saucers	783	Zinc oilers.....	9
Dinner plates	614	Egg beaters	2
Soup plates	680	Cake turners	9
Tumblers.....	306	Block scrapers	3
Sugar bowls	29	Mouse traps.....	20
Sugar bowls, granite.....	34	Stone hammer handles.....	7
Platters, granite.....	9	Sugar buckets, wooden....	10
Soup tureen, granite	1	Washboards	9
Vegetable dishes, granite..	18	Meat pounders	2
Chambers, granite.....	2	Knife and fork trays.....	3
Lamp chimneys, dozen.....	2	Molasses gates	2
Fruit jars.....	40	Curry combs.....	30
Jelly glasses	27	Milk cans.....	6
Lantern globes.....	48	Fiber pails.....	40
Pepper shakes	48	Crumb pans.....	19
Salt shakes	32	Lanterns	4
Vegetable dishes	19	Horse brushes.....	24
Butter plates, individual...	557	Cow cards.....	28
Water bottles.....	120	Tin dippers.....	9
Individual salt dishes.....	18	Hair brushes.....	5
Large Japan trays.....	20	Stove brushes	11
Dust pans	23	Shoe brushes.....	35
Wash bowls	17	Shoe daubers.....	20
Syrup jugs	11	Crumb brushes.....	14
Vinegar cruets	14	Bath brushes	25
Small Japan tray	1	Scrub brushes.....	68
Egg spoons.....	7	Brushbrooms	60
Nutmeg graters	17	Whitewash brushes.....	3
Tin spit cups.....	4	Wall brushes	13
Water cans.....	10	Fiber doormats.....	64
Tin funnels.....	4	Toothpicks, packages ..	86
Tin measures	6	Matches, boxes.....	864
Lemon squeezers	2	Chamois skins.....	26
Cork screws.....	4	Sand paper, dozen	12
Toasters.....	4	Bath brick, dozen	3
Flour sieves	4	Red seal lye, boxes	33

Rubber doormats	24	Barber combs	8
Wire doormats.....	16	Fine combs	45
Milk pans.....	10	Lead pencils, dozen	1
Toasters.....	12	Pens, gross,	2
Fiber chambers, dozen	2	Penholders, dozen	16
Scythe blades... ..	3	Envelopes	2,500
Corn poppers	4	Envelopes, No. 6.....	1,500
Pick handles	8	Note paper, quires.....	3
Bushel baskets	9	Congress cap, quires	25
Market baskets.....	9	Sheep cover nurses' books,	
Rocking chairs.....	6	dozen	2 $\frac{7}{12}$
Chairs	4	Mucilage, bottles	15
Heavy chairs.....	2	Red ink, bottles.....	22
Small mirrors	19	Writing fluid, qt. bottles ..	9
Bevel mirrors	24	Writing fluid, pt. bottles ..	3
Window cleaner.....	1	Ward journals	16
Four-gallon jars.....	5	Note books D.....	17
Scythe stones	7	Small pads, dozen	3
Level	1	Hymn books.....	278
Buck saws	3	Bibles.....	17
Hand saw.....	1	Thermometers.....	5
Bird cages.....	2	Lantern burners	4
Wooden measures	5	Checkerboard	1
Sanitas toilet soap, pkgs...	3	Tin drinking cups	4
Tea and coffee cans.....	25	Set dominoes.....	3
Small tea pots.....	5	Maple sugar, pounds	757
Toilet paper, rolls	25	Chocolate, pounds	10
Toilet paper, pkgs	215	Whole cloves, pounds	4
Razor strops	13	Lemon extract, gallons	1 $\frac{1}{2}$
Copying paper, rolls	4	Vanilla extract, gallons....	1 $\frac{1}{2}$
Sanitas soap vase	1	Beef extract (4 oz. jars), doz.	2
Table knives (all kinds) ...	215	Pepper, pounds	50
Table forks (all kinds)	332	Allspice, pounds	20 $\frac{1}{2}$
Table spoons (all kinds)... ..	25	Ground cloves, pounds	6 $\frac{1}{4}$
Tea spoons (all kinds).....	50	Ground cinnamon, pounds..	2 $\frac{1}{4}$
Basting spoons.....	16	Cinnamon stick, pounds ...	3
Brooms	30	Nutmeg, pounds.....	8
Barber shears, pair.....	1	Ginger, pounds.....	22 $\frac{1}{4}$
Cleaning soap, bars	151	Mustard, pounds.....	42
Toilet soap, bars.....	475	Hominy, pounds.....	110
Harness soap, bars.....	5	Apples, bushels.....	52
Lather brushes	23	Butter, pounds.....	1,523
Coarse combs, dozen	4 $\frac{1}{3}$	Loaf sugar, pounds.....	125

Eggs, dozen	376	Dried citron, pounds.....	4
Dried apricots, pounds	900	Saltpetre, pounds	10
Table salt, pounds	1,100	Pastry flour, barrels	22½
Common salt, pounds ...	280	Graham flour, pounds	70
Pickles.....	2,800	Buckwheat flour, pounds ..	1,080
Codfish, pounds	100	Patent flour, barrels	54
Salt fish, pounds.....	500	Screws, gross	10
Syrup, gallons....	100	Rubber tips for chairs,	
Insect powder, pounds.....	5	gross.....	3
Vinegar, gallons.....	441	Padlocks	16
Raisins, pounds	740	Picture books, dozen.....	4
Seedless raisins, pounds ...	20	Crutch tips, gross.....	1
Tapioca, pounds.....	753	Two ounce tacks, dozen ...	1
Tea, pounds	1,275	Screw eyes, dozen	7
Corn, 2-pound cans	1,039	Upholstering nails, dozen..	7
Tomatoes, 3-pound cans ...	101	Cup hooks, dozen.....	1½
Peaches, 3-pound cans.....	105	Iron block, plain	1
Oysters, 1-pound cans	25	Drawer lock	5
Apricots, 2-pound cans	72	Can openers	9
Peas, 2-pound cans.....	151	Iron drawer locks.....	16
Salmon, 2-pound cans.....	11	Kitchen knives.....	10
Red seal lye	42	Picture wire, package.....	2
Shaving soap, bars.....	54	Drawer locks	2
Cocoa, half-pound pkgs....	33	Small cabinet locks	5
Gelatine, 4-ounce pkgs	44	Door locks.....	9
Sewing machine oil, bottles.	50	Sash locks, dozen	3
Wheatlet, 5-pound pkgs... ..	18	Padlocks, dozen	3
Hominy, 5-pound pkgs	5	Towel holders.....	6
California breakfast food,		Nut crackers.....	9
pkg.....	1	Loose pin butts	6
Macaroni, pounds.	28	Shelf brackets, dozen pairs,	1½
Stick stove polish.....	28	Mortise dead lock	2
Beans, pounds.....	3,860	Pulldown plates, dozen....	12
Oatflakes, pounds.....	1,516	Sash lifts, dozen.....	12
Farina, pounds.....	800	Crosby bolts.....	13
Dried apples, barrels.....	1,735	Locks	14
Coffee, pounds	885	Butts, three pair.....	7½
Dried blackberries, pounds,	625	Axe handles	20
Floor wax, pounds.....	9	Scoop shovels.....	6
Pearl barley, pounds.....	623	Hoes.....	1
Dried peaches, pounds.....	175	Picks	12
Dried currants, pounds....	1,199	Spades	7
Dried prunes, pounds.....	2,412	Potato forks.....	12

Barley forks	1	Rubber boots, pairs	70
Hay forks	5	Rubber overshoes, pairs . . .	55
L. H. R. P. shovels	8	Lumbermen's rubbers, pairs.	23
Steel garden rakes	2	Lumbermen's felts, pairs . . .	9
Snow shovels	13	Slippers, pairs	47
Scythe snathe	1	Black bows	257
Willow barn brooms	3	Aprons	3
Hay rakes	6	Shirt buttons (bone), gross.	17
Clocks	3	Shoe laces, dozen	62
Felt hats	50	Collar buttons, dozen	76
Straw hats	33	Carpet binding, rolls	43
Waterproof hats	3	Oilcloth, yards	84
Caps, southwesters	18	Toile du nord, yards	1,351½
Caps, cloth	190	Striped ticking, yards	51
Caps, skull	13	Rubber tissue, pounds	2
Overcoats	27	Wadding, dozen	48½
Coats	17	Military canvas, yards	300
Coats, waterproof	1	Italian coat lining, yards . . .	831½
Coats, cooks	22	Stay tape, spool	1
Vests	45	Wigan, yards	350¾
Pants	44	Aberdeen, yards	100
Jumpers (overall)	64	Sleeve lining, yards	484½
Cardigan jackets	10	Bed spreads (colored)	25
Overalls	59	Henrietta, yards	108½
Strong suits	5	Cable cord, spools	46
Paper collars	1,550	Colored plush, yards	31¾
Cotton shirts	36	Thimbles	546
Colored shirts	2	Coat and vest buttons, doz.	595
Bosom shirts	55	Hair pins, bunches	107
Nightshirts	33	Crash, yards	2,075
Undershirts	225	Dress buttons, dozen	285
Drawers	245	Linen thread, spools	609
Socks, woolen, pair	38	Sewing machine twist, lb. . .	¼
Socks, cotton, pair	757	Superior Holland, yds	46½
Cloth mittens	356	Pants buttons, dozen	1,002
Leather mittens	56	Utica "U" 58 in. unbleach.	
Socks, lumberman's, pair . .	38	yards	501
Suspenders, pair	172	Undervests	71
Handkerchiefs	644	Brown duck, yards	142½
Shoes, pair	416	Mittens, pairs	283
Shoes, canvas, pair	1	Leggings, pairs	84
Leather boots, pairs	61	White duck, yards	364½
Waterproof boots, pairs . . .	3	Victoria lawn, yards	130

Alpaca, yards.....	8	Overcoat buttons, doz.....	140
Knitting yarn, balls.....	162	Darning needles, papers ...	30
Shawls	1	Oil can.....	1
Cloaks	7	Belts.....	1
Bed spreads	83	Tape measure.....	1
Drilling, yards	41	Stocking yarn, skeins	50
Atlantic "P" cotton, yds..	510	Standard drilling, A, yds ..	918½
Utica "U" 36 in., yards...	652	Denim, yards	107½
Utica "U" ¾ b'l'd sheeting,		Cotton flannel, yards.....	199¾
yards	553¾	Strong blankets	35
Shroud cotton, yards.....	309½	Linen collars.....	164
Ticking, yards	1,211¼	Linen cuffs, pairs	85
Button hooks	94	Shoe laces, dozen	61
Strainer cloth, yards	34½	Elastic, yards	180
Outing, yards	238¾	Linen thread, knots.....	180
Hoods	87	Buttonhole twist, spools...	6
Sewing mch. needles, papers.	3	Felt, yards	9½
Corsets, pairs	18	Table linen, white, yards ..	454
Silk thread, spools	48	Shade material, yards	226
Table napkins, doz.	14	Towels	425
White flannel, yards	3½	Handkerchiefs	296
Fur caps	10	Scrim, yards	130
Germantown yarn, sks	59	Agate buttons, dozen	2,000
Shoe buttons, doz.	1,225	Awning cloth, yards	80
Shoes, pairs.....	249	Button rings.	890
Stockings, pairs	1,756	Needles, papers	39
Felt slippers, pairs	36	Calico, yards.....	134
Rubbers, pairs	130	Ruching, yards.....	640
Knitting cotton, balls	46	Crochet cotton, spools.....	59
Darning cotton, balls.....	66	Tapestry, yards	27
Embroidery cotton, bchs ..	61	Sateen, yards	593¾
Napkin cloth, yards.....	30¼	Batting, pounds	514
Red table linen, yards.....	51	Pins, papers	130
Conestago, yards	454¾	Cotton thread, spools	3,145
Glass toweling, yards	190	Underdrawers, pair	178
Straw hats.....	6	Cretonne, yards	148
Crochet hooks.....	20	Silesia, yards	364¾
Colored chalk, pieces	180	Safety pins, papers.....	88½
Universal bone buttons, doz.	144	Knitting needles, sets.....	169
Shirt buttons, dozen	9	Mull a la Suisse, yards	600
Hooks and eyes, dozen	618	Blankets	315
Black braid, yards	88	Butcher's linen, yards.....	207



Cotton, Anon brand, yards,	690	Whisky, gallons.....	62
Black ribbon, yards.....	283 $\frac{1}{4}$	Wine, gallons.....	71
Alcohol, gallons.....	45		

Steward's Sales for the Year Ending September 30, 1894.

October	\$28 01	May	\$25 67
November	38 82	June.....	81 36
December	61 45	July	134 36
January	4 25	August.....	26 70
February	5 80	September	323 66
March	21 81		
April	37 91	Total	<u>\$789 80</u>

Monthly Audit of Vouchers, with their Classification, for the Year Ending September 30, 1894.

CLASSIFICATION.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.
Officers' salaries	\$1,100 00	\$1,000 00	\$1,225 00	\$1,325 00	\$1,175 00	\$1,191 66	\$1,125 00	\$1,125 00	\$1,325 00	\$1,225 00	\$1,225 00	\$1,225 00
Wages.....	4,583 86	4,803 06	4,623 11	4,884 95	5,073 27	5,319 87	5,325 75	5,528 39	5,634 06	5,670 57	5,632 31	5,706 58
Provisions and stores	3,562 41	3,512 80	2,566 78	4,572 17	5,238 78	5,701 30	4,617 69	5,581 25	5,089 27	5,547 88	4,646 24	5,139 08
Ordinary repairs	112 30	488 81	298 00	407 54	304 61	476 49	228 44	951 47	426 76	412 66	343 89	572 70
Farm and grounds	245 73	387 20	183 54	475 56	203 05	2,862 68	215 95	656 87	721 13	433 37	7 20	433 03
Clothing.....	1,001 29	1,078 77	396 93	348 28	1,072 84	1,333 69	809 03	1,568 48	829 67	1,528 56	1,620 63	2,218 33
Furniture and bedding.....	50 00	304 61	827 53	.....	415 88	772 18	558 95	577 01	144 37	520 52	839 49	1,028 75
Books and stationery	48 71	148 34	78 84	103 15	141 23	83 24	109 32	97 79	183 21	58 40	37 55	1,108 58
Fuel and light	4,014 95	2,619 47	2,921 50	4,603 30	5,116 84	4,712 95	2,484 24	1,650 35	183 21	1,447 61	1,680 61	1,374 22
Medical supplies	256 79	95 63	241 30	104 17	203 41	110 22	203 14	179 87	150 77	207 67	144 95	1,109 69
Miscellaneous	528 85	471 25	740 62	231 75	23 83	324 35	330 23	441 86	312 46	304 89	277 63	339 25
Transportation of patients.	265 79	248 47	338 77	372 87	314 66	242 34	44 36	483 70	438 06	363 77	394 14	482 24
Totals	\$15,770 78	\$15,238 41	\$14,441 97	\$16,734 14	\$19,502 40	\$23,121 07	\$16,449 10	\$18,842 04	\$15,473 01	\$17,718 90	\$16,849 94	\$18,737 45

Summary of Vouchers Audited for the Year.

Officers' salaries	\$14,166 66	Books and stationery,	1,159 82
Wages	62,785 78	Fuel and light	32,294 25
Provisions and stores,	55,775 65	Medical supplies	2,012 71
Ordinary repairs	5,024 07	Miscellaneous	4,540 97
Farm and grounds..	6,312 31	Transportation of pa-	
Clothing	13,696 18	tients	4,386 17
Furniture and bed-			
ding	6,724 64	Total	\$208,879 21

LIBRARIAN'S REPORT.

Accessions for the year	144
Number of books issued	2,558

C. W. HUNTINGTON,
Librarian.

Laws, Rules and Regulations.

St. Lawrence State Hospital District.

In accordance with the provisions of section 1 of chapter 126 of the Laws of 1890, the St. Lawrence State Hospital is assigned the counties of Onondaga, Oswego, Jefferson, Lewis, St. Lawrence, Franklin, Clinton and Essex, which counties compose the St. Lawrence State Hospital district.

Section 5 of said chapter provides that "each of the State hospitals for the insane shall receive patients, whether in an acute or chronic condition of insanity, from the district in which the hospital is situated."

Section 9 of said chapter provides that "in case any insane person, his relatives, guardians or friends, may desire that he become an inmate of any State hospital situated beyond the limits of the district where he resided, and there be sufficient accommodations there to receive him, he may be received there in the discretion of the chairman of the State Commission in Lunacy and the superintendent of such hospital. Any expense of removal, in such case, must be borne by said person's guardians, relatives or friends as the case may be."

Commitment of Patients.

[Chapter 446, Laws of 1874.]

SECTION 1. No person shall be committed to or confined as a patient in any asylum, public or private, or in any institution, home or retreat for the care and treatment of the insane, except upon the certificate of two physicians, under oath, setting forth the insanity of such person. But no person shall be held in confinement in any such asylum for more than five days, unless within that time such certificate be approved by a judge or a justice of a court of record of the county or district in which the alleged lunatic resides, and said judge or justice may institute inquiry and take proofs as to any alleged lunacy before approving or disapproving of such certificate, and said judge or justice may, in his discretion, call a jury in each case to determine the question of lunacy.

§ 2. It shall not be lawful for any physician to certify to the insanity of any person for the purpose of securing his commitment to an asylum, unless said physician be of a reputable character, a graduate of some incorporated medical college, a permanent resident of the state, and shall have been in actual practice of his profession for at least three years. And such qualifications shall be certified to by a judge of any court of record. No certificate of insanity shall be made except after a personal examination of the party alleged to be insane, and according to forms prescribed by the state commissioner in lunacy (State Commission in Lunacy), and every such certificate shall bear date of not more than ten days prior to such commitment.

§ 3. It shall not be lawful for any physician to certify to the insanity of any person for the purpose of committing him to an asylum of which the said physician is either the superintendent, proprietor, an officer, or a regular professional attendant therein.

Chapter 283, Laws of 1889, as amended by chapter 273, Laws of 1890. Section 7. "It shall not be lawful for any medical examiner in lunacy to make a certificate of insanity for the purpose of committing any person to custody unless a certified copy of his certificate has been so filed and its receipt in the office of the commission (State Commission in Lunacy) as above provided has been acknowledged."

These blanks may be obtained free upon application to the State Commission in Lunacy, county clerks, superintendents of the poor and the superintendents of hospitals for the insane.

Private or Pay Patients.

It is ordered by the State Commission in Lunacy that "No private or pay patient at any State hospital be permitted to occupy more than one room for his or her personal use or behoof, or to command the exclusive services of an attendant; and there shall be no distinction permitted between public and private or pay patients as to the care and accommodations furnished them.

"That whenever the managers or trustees shall determine that vacancies exist, private or pay patients may be admitted by them without further restrictions, at a rate of compensation not to exceed ten dollars per week, preference to be given in all cases to patients of small or moderate means."

Rules Governing Transfer of Public Patients.

The statute (section 6 of chapter 126 of the Laws of 1890) having made it the duty of the President of the State Commission in Lunacy to prescribe regulations governing the transfer of public insane patients

from their homes or from poor-houses to State hospitals by superintendents of the poor, and concerning the clothing of said patients, it has been ordered :

1. That all county superintendents of the poor or town, county or city authorities, before sending a patient to any State hospital, see that said patient is in a state of bodily cleanliness and provided with the following clothing, to wit :

(a) One full suit of underclothing.

(b) One full suit of outer clothing, including headwear, boots or shoes.

Between the months of November and April, both inclusive, there shall be provided, in addition to the foregoing, a suitable overcoat for the men patients and a suitable shawl or cloak for the women patients ; also gloves or mittens. Considering the great danger, always present, of the introduction of contagious or infectious diseases into institutions where large numbers are congregated, and to avoid, as far as possible, the introduction of such diseases by means of wearing apparel, the clothing above provided must in all cases be new.

Parole of Patients.

It is ordered by the State Commission in Lunacy : “That no insane patient while in the custody of an institution be permitted to go upon parole, who, in the judgment of the medical superintendent, is homicidal, suicidal, destructive or dangerous either to himself or others.

“That no parole be granted for a greater period than thirty days, exclusive of the date thereof.

“A patient who has been paroled, or who has escaped, if not returned to the institution on the thirtieth day, exclusive of the date of parole or escape, must be discharged from the books on that day, and such patient must not be readmitted except upon a new medical certificate of lunacy.”

Transfers of Patients from Other Institutions.

By Order of the State Commission in Lunacy:

1. No inmate shall be transferred from one institution for the care and treatment of the insane to another except upon the following terms and conditions:

(a) An application in writing, setting forth the reasons for such transfer, shall be made to the Commission by the medical superintendent or officer in charge of the institution from which the transfer is sought to be made.

(b) An order of transfer in writing, attested by its secretary, must be obtained from the Commission.

(c) The order of transfer must be filed in the institution from which the transfer is made, and a certified copy of the same, together with a certified copy of the medical certificate of lunacy annexed, must be filed in the institution to which the transfer is made.

2. This order shall not apply to either of the following cases:

(a) Inmates of the State Asylum for the Insane Criminals, or patients committed upon "criminal orders."

(b) Patients ordered transferred by the Commission upon its own motion.

2. In travelling by rail patients must not be compelled to ride in smoking or baggage cars, except in the case of men patients who may be so violent, profane or obscene as to render their presence in ordinary passenger coaches offensive. If any portion of the route is necessary to be traversed by a team, a covered conveyance should, unless impossible, be provided. The shortest practicable route should be selected, the hour of departure should be timed, so far as possible, so as to avoid the necessity of stopping over night on the journey, and so as not to reach the hospital at an unreasonable hour. Whenever practicable, a notice in advance, by writing or telegraph, should be sent to the medical superintendent of the hospital of the coming of the patient. In cases of violent patients a sufficient number of attendants should be provided to control their actions without resorting to the use of mechanical restraints, such as straps, ropes, chains, handcuffs, etc.; quieting medicines should not be given to such patients except upon the prescription of a physician. If it becomes necessary to remain over night or for a number of hours at a station on the route, patients are not to be taken to jail, police station or lockup. Food in proper quantity and quality, and at intervals not exceeding five hours, should be provided for patients, but no alcoholic beverages must be given unless upon prescription of a physician. Opportunity must be afforded for attention to the calls of nature, and the rules of decency must be observed. In case of the employment of extra attendants in conveying violent patients, care must be taken that they are of adult age and good moral character. The provisions of the statute which require that a woman attendant shall accompany women patients when taken to State hospitals must be strictly complied with.

3. Any violation of the requirements of this order shall be promptly reported, so far as known to him, by the medical superintendent of the hospital to the State Commission in Lunacy.

Attendants to Transfer Patients.

By Order of the State Commission in Lunacy:

1. The authorities of each State hospital are hereby directed to send such number of trained attendants as may be necessary to transfer patients supported at public expense from their homes or from poor-houses, as the case may be, to said State hospitals.

2. All transfers of insane patients, as provided by this order, must be made in conformity with the rules prescribed in the order of the Commission, dated December 1, 1892, and known as form 112.

3. Patients supported at public expense shall be transported only by such public officers as are herein named, but relatives or friends may transfer or accompany such patients at their own expense.

4. This order shall be in effect on and after October 1, 1893.

Service of Legal Process Upon Insane Patients.

Under an order of the State Commission in Lunacy, dated June 2, 1890, "the superintendent of each institution for the care and treatment of the insane, must not permit the service of any legal process whatever upon any insane patient, and no insane person must be permitted to sign any bill, check, draft or other evidence of indebtedness, or to execute any contract, deed, mortgage or other legal conveyance, except upon the order of a judge of a court of record, which shows that the judge had notice of the fact that the person sought to be served, or whose signature is sought to be obtained, was at the date of the order an inmate of an institution for the care and treatment of the insane."

Correspondence.

Applications for the admission of patients should, when practicable, be made in advance of bringing them to the hospital, and each patient should be accompanied by some person competent to furnish a history in the case. In case of a patient transferred at public expense by an attendant from the hospital, the friends should furnish as full a history of the case to accompany the patient in order to assist the physician in the treatment of the patient.

Each patient should have but one correspondent who, at all times, should keep the medical superintendent fully advised of any change in his or her mail or telegraph address. With such a large number of patients letters can not be answered except those from the recorded correspondent, and all other letters will be referred to such. By advice the correspondent can be changed at any time, and as many inquiries



INFIRMARY, SOUTH FACADE (UPPER VIEW)
INFIRMARY, DAY ROOM (LOWER VIEW)

from this source as may be desired, will be willingly answered. It is always preferable to have the nearest relative the correspondent.

The correspondent will be informed by telegraph in case of the serious sickness or in the event of the death of a patient, where it is practicable to do so. Remains will be sent by express when a guarantee is received from the express agent that the charges for transportation will be paid; otherwise they will be appropriately buried in the hospital cemetery, and the grave permanently marked, numbered and recorded. All correspondence concerning patients or the business of the hospital should be addressed to Dr. P. M. WISE, MEDICAL SUPERINTENDENT, OGDENSBURG, N. Y.

SPECIAL REPORT.

STATE OF NEW YORK — STATE COMMISSION IN LUNACY.

Carlos F. MacDonald, *President*, Goodwin Brown, Henry A. Reeves,
Commissioners.

*Special Report of the St. Lawrence State Hospital for the Year Ending September 30, 1894.

1. State generally the operations of the hospital for the fiscal year ending September 30, 1894 ; giving the number and kind of buildings erected or completed during the year, or now in course of erection ; the extraordinary repairs to buildings, and other important improvements and betterments begun or completed during the year ; also any new features in methods of management, together with a review of the general results of the year, including the number of patients present at the beginning of the year, number admitted, discharged, recovered, improved and unimproved, number died, total discharged, whole number treated, and average daily population during the year.

2. Give separately the purpose and amount of special appropriations granted to the hospital by the Legislature of 1894, and the total sum of such appropriations, together with the amount expended under each.

3. Give an itemized schedule of appropriations to be asked for in 1895, and state briefly the necessity for each item in the schedule.

4. Give the yearly and weekly per capita cost "for the care, medical

*The special report to the State Commission in Lunacy was requested and made subsequent to the report of the Medical Superintendent to the Board of Managers. The questions are so comprehensive and suggestive, however, and the replies cover to such a large extent the operations of the hospital, not included in the official report of the Board of Managers and of the Medical Superintendent to the Managers herewith, that it is considered pertinent to incorporate it as a part of the official report from this hospital. The replies to that part of the "Special Report" that are substantially covered elsewhere in this report are not repeated. P. M. W.

treatment, maintenance and transportation of the insane poor to State hospitals, the payment of officers' salaries, the payment of employes' wages and ordinary and incidental repairs" (section 1, chapter 214, Laws of 1893), and all other expenses, exclusive of all expenditures made under special appropriations.

5. Give the percentage of recoveries on the number of patients admitted, on the average daily population, on the whole number treated, and on the number discharged during the fiscal year.

6. Give the percentage of deaths on the number of patients admitted, on the average daily population, on the whole number treated, and on the number discharged during the fiscal year.

7. Give whole number of inebriates (including alcoholic, opium and other narcotic habitués) discharged during the year, and state whether these are classed as "recovered" or "not insane" in your annual report.

8. Of those discharged recovered during the previous year, how many were re-admitted prior to October 1, 1894?

(The information sought in questions 1 to 8, inclusive, is substantially given elsewhere in this report.)

9. What is the practice of the Board of Managers, or Trustees respecting visitation and inspection of the hospital? Give the number of visits made by each manager or trustee during the fiscal year.

Answer. The Board of Managers have regular quarterly meetings at the hospital, and at these meetings they usually visit the hospital, either as a whole or in parts. The Executive Committee, comprising all the members of the Board resident in Ogdensburg, have frequent meetings at the hospital and make frequent visitations. No record of these visits is made, as they often come and go without a resident officer's knowledge. I should think a fair estimate would be an average of one visit weekly. One member of the Board has not been at the hospital during the year, and others visit very infrequently. The burden of visitation, as well as the labor of the Board, is borne by the members resident in Ogdensburg. As a rule the distant members do not keep as well informed as to the operations of the hospital as the resident members. It is to be regretted that managers are so far away that they are unable to give the work of the hospital their frequent attention.

10. State the requirements governing the selection and appointment of medical officers, and on what basis promotions in the medical service are made.

Answer. The reply to this question is the rules governing Schedules B and E of the classification of the Civil Service. I can not conceive

how it is possible for a medical superintendent to exercise any discretion in appointments of medical officers beyond a selection of one of the three names submitted to him as highest upon the competitive list. Promotions are governed in an equally mandatory way by Schedule E. Boards of managers are controlled in the same manner, in the appointment of medical superintendents.

11. Give the ratio of medical officers, both exclusive and inclusive, of medical superintendent and internes to patients.

Answer. Exclusive of medical superintendent and medical internes, 1 to 256; inclusive of medical superintendent and medical internes, 1 to 160.

12. Is the number of medical officers sufficient, in your opinion, to insure to every recoverable case that degree of specialized treatment which such cases require, and, if not, to what extent should it be increased?

Answer. Notably deficient. One physician should not have to exceed fifty patients of the acute class, and even this number will hardly give him the time to give the attention to each case that is required for adequate medical observation and treatment. In our central or receiving group of buildings there should be at least four assistant physicians, supplemented by two medical internes.

13. State salaries and all allowances of the different grades of resident officers; also salary and all allowances of the treasurer.

Answer. The following are the annual salaries of the resident officers of the hospital, and for each officer there is an allowance of board and washing for the officer and his family, in addition to the salary.

Medical superintendent.....	\$5,000
First assistant physician.....	1,800
Second assistant physician.....	1,500
Third assistant physician.....	1,300
Fourth assistant physician.....	1,200
Female assistant physician.....	1,200
Steward.....	1,500

The treasurer receives a salary of \$1,500, without any other allowance.

14. In your opinion are the salaries and allowances of the medical officers sufficient to secure and to retain in the service competent and qualified physicians?

Answer. I do not regard it desirable to retain in the service for long periods all the members of a medical staff. This effort might profitably

be made for probably the two senior assistant physicians, and as regards these I do not believe the salaries and allowances are sufficient.

15. Is there any dissatisfaction existing among the officers and employes of the hospital on account of inequality of pay as compared with the pay of officers and employes of similar grade in other hospitals of the State? In your opinion should not the pay and allowances of employes of similar grade be the same for all the hospitals?

Answer. None has come to my notice. I believe if similar grades in the several hospitals require the same duties in degree and scope, the pay and allowances should be alike. This condition does not exist in all departments of the several hospitals. It does, unquestionably, apply to the mass of nurses and attendants. It does not to supervisors, whose functions differ as widely as construction and organization, no two hospitals being alike in these respects. Persons employed by the State should be paid for the duties they perform, or are called upon to perform, with the same measures that are applied in ordinary business life or by large corporations. If conditions and requirements in all the State hospitals were absolutely alike, there would exist no valid reason for allowing any differences in salaries and allowances; but they are not, and from peculiarities of construction, location, etc., they can not be made so.

16. What proportion of the time of the medical superintendent is actually devoted to the medical care of the patients, and how much of his time, approximately, is given up to official matters not strictly medical in character?

Answer. The distinction between what is and what is not a strictly medical duty, must be drawn before this question can be intelligently answered. I assume that if a superintendent is consulting with his assistants about the medical care of his patients; if he is visiting the wards; examining the case histories, clinical records, or individual patients; attending to designs for enhancing the welfare of patients, etc., he is devoted to the medical care of patients. Upon that hypothesis the medical superintendent devotes about half of his time to it, the remainder being taken up with executive or administrative work which has markedly increased since the State Care Act went into effect. In the case of this hospital, the superintendent is consulted about matters of construction which would not apply in a completed institution. Organization of new buildings requires a considerable share of his attention. He meets each one of his assistants daily and consults him about his work, giving his personal attention and examination to cases that seem to need it.

17. In your judgment would it be feasible or desirable to separate the strictly medical work from the business management of the hospital ; and what, if any, would be the objections to such an arrangement ?

Answer. It would be very desirable if it was feasible. The experiments that have been made in other States towards this division are not encouraging. The objections briefly stated are (1) there would be two resident heads to the institution. In case of disagreement there would be a divided house with more or less friction resulting in injury to the service ; (2) the business and medical departments in an insane hospital are so closely interlocked that it would be quite impracticable to make an absolute division, as is done in a general hospital, where patients do not "reside" but "board" for a stated time. In an insane hospital the conduct, labor and régime of patients, which are all medical questions, sustain also a very close relation to the economy of the institution and hence become business questions. These could not be divided but would require the harmonious action of both "heads" ; (3) as a rule, stewards differ from their chiefs in opinions regarding financial management, although being subject to them, the opinion of the chief prevails. If the steward was also a chief the natural result would be that the business management would not harmonize with the medical, and such a result is certainly not desirable. On the other hand medical superintendents should be relieved from much of the routine work that is the direct result of their multiple responsibilities ; and stewards should be held to a greater individual responsibility and thus relieve the superintendent.

18. How many of the medical officers of the hospital are college graduates ?

Answer. Three.

19. What proportion of the medical officers of the hospital has had previous experience in a general hospital ?

Answer. Four.

20. Do the junior medical officers receive special instruction in mental medicine, mental pathology, neuro-anatomy, and in the use of "instruments of precision," especially as regards the use of the microscope, ophthalmoscope, etc., and if so, by whom and to what extent?

Answer. Not systematic, but where the need exists. By the senior medical officers.

21. Give a list of the "instruments of precision," surgical instruments and medical appliances possessed by the hospital.

Answer. "*Instruments of precision*": Two microscopes; sphygmograph; milimeter; thermometers; stethometer; urinary tests of all kinds with chemicals and apparatus; dynamometer; æsthesiometer; stethoscopes; scales; measures; hæmacytometer; hæmaglobinometer; faradic and galvanic batteries; ophthalmoscopes; camera lucida; pupillometer; laboratory scales.

Surgical instruments: Amputating case; trephining case; cupping outfit; emergency cases; batteries; case of curettes; case of cautery points; hypodermic syringes; cases of sounds and catheters; probes, scalpels, bistouries and tenotomes; tenaculi, dental forceps, scissors, needle holders, tissue forceps, directors, artery forceps, retractors, depressors; aspirating outfit; six minor surgical cases; cautery outfit; speculæ, uterine sounds, curettes, caustic holder, placenta forceps, uterine forceps, obstetric forceps, sounds, dilators and scissors; tracheotomy tubes; surgical emergency cases; needles, silver wire, etc.

Medical appliances: All drugs and the means of their application; bandages; sterilizers, etc.

Pathological instruments and apparatus have not been included in above.

22. Give the nature and extent of hydrotherapeutic appliances in the hospital and the extent of their use in the treatment of patients.

Answer. As before stated, balneo-therapeutical apparatus has been awaiting the construction of the amusement hall in which is to be located the bathing apparatus. We have a needle bath and seven douche baths, an extended report upon which has been made by one of the assistant physicians and is incorporated in the forthcoming annual report of this hospital. Douche baths are used here therapeutically in cases chiefly characterized by sluggish circulation as a stimulant in connection with massage. The bath itself, by increasing the pressure, is a massage apparatus and is occasionally so used. Two elements are recognized as therapeutical, both in the douche and the needle bath—although our experience with the latter thus far is *nil*, viz.: temperature and force. They can be varied interminably and combined to suit any condition. The warm plunge bath is used in cases of great activity, particularly in acute mania. Medicated baths are not used. Sponge and vapor baths in exceptional cases. The wet pack is also used.

23. Are clinical lectures on mental diseases given in the hospital to medical students and others, and, if so, by whom, and to what extent. If any of the medical officers are connected with medical schools as teachers, state the fact.

Answer. No medical school being in the vicinity, the hospital is not used for clinical purposes by medical students, but physicians from the

vicinity frequently meet at the hospital and receive clinical instruction. The medical superintendent is a lecturer on insanity in a medical college.

24. State the nature and extent of general and medical libraries in the hospital, including number of volumes in each ; also give a list of the medical books purchased during the fiscal year, and of the medical and general publications regularly taken by the hospital.

Answer. The general library for patients contains 2,515 volumes. The medical library contains 749 volumes. The following medical books were added to the library during the fiscal year : Annual of Universal Medical Sciences, five volumes; Supplement to Reference Handbook of the Medical Sciences; Foster's Medical Dictionary; Bramwell's Atlas of Clinical Medicine; Monroe's System of Genito-Urinary Diseases and Syphilology; Matthew's Diseases of the Rectum; Ewald on the Stomach; Fuch's Ophthalmology; Tillman's Surgery; Hamilton's Legal Medicine; Sternberg's Bacteriology; Jakoch's Clinical Diagnosis; MacFarlane's Clinical Manual; Stark's Brain Surgery; Hyde's Diseases of the Skin; Pepper's American Text-Book; Hirt's Nervous System; Gower's Nervous System; Regis' Mental Medicine; State Medical Society Proceedings; Haig's Uric Acid Diathesis; Bouchard's Auto-Infection; Year-Book of Treatment. There was a special appropriation for medical books. The following journals are taken: Journal of Mental Science; Journal of Insanity; Journal of Nervous and Mental Disease; American Journal of Psychology; Medical and Surgical Bulletin; Brain; New York Medical Record; New York Medical Journal; Universal Medical Journal; American Journal of the Medical Sciences; Index Medicus.

25. State to what extent, if any, the medical officers of the hospital have contributed to the literature of psychological or other departments of medicine during the fiscal year.

Answer. The first assistant physician is assistant editor of the American Journal of Insanity. The second assistant physician is a reviewer for the same journal. The staff have made the following contributions to medical literature during the year: "Mental Epilepsy," "The Relations of Physical and Mental Disease," "Clinical Records and Bedside Notes," "Case of Hydrocephalus Ex-vacuo," by Dr. Mosher; "Laboratory Methods for Insane Hospitals," "Intracranial Tumour Complicating General Paralysis," "Recovery Hastened by Diversion," "An Acute Case of General Paralysis," by Dr. Cook; "Locomotor Ataxia and Insanity," by Dr. Parker; "Observations upon the Douche Bath for the Insane," "Mental Enfeeblement in Acromegaly," by Dr. Hutchings; "Relations of Gynecology to

Psychiatry," by Dr. Pease; "Analysis of One Hundred Consecutive Autopsies," by Dr. Sawyer; "The Blood in the Insane," by Dr. Burton; "Eighth Annual Report of the St. Lawrence State Hospital," "Concealed Delusions and Maniacal Accession," "Civil Service Rules in State Hospitals in New York," and reports of cases, by Dr. Wise.

27. To what extent, if any, are outside physicians, whether general, practitioners or specialists, invited to consultations in the hospital? Would it be desirable, in your judgment, to have a board of consulting physicians?

Answer. An ophthalmologist is frequently consulted and makes frequent examinations for the medical staff, but not as frequently as it is desirable, for the reason that there is no provision to pay for this service. Heretofore, it has been given gratis. The same applies to surgeon's in special cases. General practitioners are not as frequently called upon, although occasionally. It is my opinion that a small board of consulting physicians would be very desirable.

27. Describe the usual routine pursued on the admission of a patient with reference to examinations to determine the patient's mental and physical condition, case-book entries, arrangements for special observation, etc.

Answer. Upon the admission of a patient an "emergent" examination is made at once by a physician, and if the case demands it, a critical examination is not delayed. If not especially called for, the detailed examination is not made at once, but a provisional classification is made and the case is assigned to a nurse, or to several nurses if the case demands it, who take the patient in charge, administer a bath, examine the skin for eruptions or marks, and report their findings to the physician, in writing, on a form for that purpose. The patient is weighed, placed in bed, temperature and pulse taken, and then awaits the examination by the physician. This examination is exhaustive as regards the physical and mental condition of the patient. The excretions are examined, and in most cases the body fluids, and especially the blood with reference to its hæmaglobin and blood discs. The history of the patient and condition upon reception is entered in the case-book together with such other facts as should become a matter of record. At the same time there is started a clinical record, kept by the nurse in charge of the case and recording all incidents of the case, such as time and amount of excretions; time and amount of food taken; pulse, respiration and temperature observations; time and amount of sleep and its character; medicine administered, etc. In the case of acute insanity this is maintained until convalescence, or the termination

of the case. These clinical records are collected, indexed, and reference is made to them in the case-books, and they become a part of the permanent record of the case. Interruption in this plan is occasionally caused from a lack of nurses to put upon special work, as in numerous instances, such as acute delirious mania, four nurses are required during the acute stage of each case — two for day and two for night service. Where admissions of acute cases are frequent, also, there are not enough working hours in a day for the assistant to make the expert examinations. The obvious remedy is a larger medical staff and the removal of limitation in the employment of nurses for acute cases.

28. Are autopsies regularly made in the hospital, and, if so, by whom, and to what extent?

Answer. Autopsies are made without exception, in all cases where the friends grant permission. The law is so very stringent in the matter of consent, that risks are not taken unless the friends distinctly understand the request and grant permission, in plain language. They are held in about sixty-five per cent. of the cases, and by the assistant physicians. The physicians of the neighboring town are invited to be present.

29. To what extent are ophthalmoscopic examinations made on patients when admitted to the hospital?

Answer. Not as a rule, unless there are some indications calling for such an examination, when it is either made by the assistant physician or the consulting ophthalmologist, Dr. W. N. Bell. Examinations are made in a large proportion of the cases, but the exact proportion can not be given without a critical examination of the clinical records.

30. To what extent, if any, are examinations of the blood and urine of patients made; also state the practice in regard to uterine examinations.

Answer. This question, as regards the blood and urine, is fully answered by the reply to question twenty-seven. Uterine examinations are made of all new admissions of women by the gynecologist, as a rule, and when it is practicable.

31. Are the nurses and attendants in the hospital instructed in the use of the wet pack, massage, etc., and, if so, by whom, and to what extent?

Answer. The use of the wet and dry hot pack, massage, electricity, Swedish movements, etc., is a part of the curriculum of the training school for nurses. The instruction is given by the assistant physicians and supervisors, and charge nurses who are graduates of the training

school. The process of catheterization, forcible feeding and hypodermatic medication is also taught them.

32. Does the hospital employ the services of a dentist for the benefit of the patients? Would it, in your opinion, be practicable and desirable to make provision for such services in the case of public patients?

Answer. The hospital does not employ the regular services of a dentist for patients, for the reason that no allowance is granted for such purpose, although application has been made for the same. Dental work has been done by the piece by neighboring dentists, in urgent cases. I consider it very desirable that a dentist be employed with regularity for each hospital. For a hospital of this size one day a week would seem to be sufficient. There is no reason why such a service would not be practicable. The cases should be indicated by the medical officers, and dentists could have their work laid out for them in advance.

33. State in detail the special facilities, structural or otherwise, if any, together with methods used, for the special treatment of recoverable cases.

Answer. All the facilities we have are "special" to hospitals for the insane. The designs for this hospital gave particular emphasis to the separation of patients in the acute class into as accurate a classification as possible, with a view to the largest measure of individualized treatment. The capacity of buildings, however, designed for recent cases, has been augmented in numbers, without corresponding increase in cubic space, until wards that were designed for nine patients of the acute class now contain nineteen. The per capita standard of cost of construction, when applied to construction for the purely hospital treatment of the insane, will certainly prohibit any "special" features. As it is, we have preserved a number of rooms where the very acute cases can receive individual treatment during the critical period of their disease without coming in contact with other patients. The extent of such accommodation is not as great as it should be. The methods used in the treatment of recoverable cases, it is sincerely to be hoped, are in accord with the enlightened treatment of insanity elsewhere, and are not special to us. It has been our endeavor to establish the highest standard of nursing, upon which the outcome of many an acute case of insanity largely, if not wholly, rests.

34. State in detail the facilities for amusement and diversion of patients, and the nature and frequency of such amusements.

Answer. In the answer to question three the embarrassment arising from the lack of a building in which [our patients can congregate, is

fully set forth. We can state that we have no facilities for the assembling of patients for amusement and diversion. Nevertheless, patients are assembled once each week in one of our largest day rooms for a social party with dancing, and concerts, select readings and other entertainments are held from time to time. The summer amusements are picnic parties, base ball, quoits, one field-day a season, the neighboring circuses and fairs, evening brass band concerts by the hospital band, fire drills, etc. Winter outdoor amusements are skating upon the artificial lake, and sleighrides, almost daily. Indoor amusements are pop-corn and taffy afternoon parties for women in the several kitchens, bean-bags, cards and dominoes.

35. State the facilities for indoor occupation, especially mechanical industries, arts, etc., as well as those for outdoor occupation, including acreage under cultivation?

Answer. The facilities for mechanical industries are very restricted from lack of proper buildings. We manufacture brooms, brushes, mats, mattresses, upholstered furniture, cane-seating, shoes and slippers to a limited extent, clothing for men and women patients. The outdoor occupation has been chiefly agricultural and grading. Approximately 400 acres has been under actual tillage, and teamsters only are employed for it, the remaining labor being performed by patients.

36. State the various kinds of occupation provided, and the average number of patients engaged in each during the year?

Answer. Farm and grounds, 103; boiler house, offices and stores, 9; manufacturing of women's clothing and shirts, 98; tailoring, 11; kitchens, 31; refectories, 86; domestic work, 283; laundry, 47; barns, 7; shoemaking, 3; matmaking, 4; brushmaking, 2; broom-making, 8; upholstering, 12; cane-seating, 5. Total, 719. Percentage, 66.

37. Is mechanical restraint used in the hospital for the control of patients; if so, what forms of restraint are used, including the so-called "protection sheets," and under what circumstances are they used?

Answer. Mechanical restraint is used when it is indicated for the welfare of the patient, with the exercise of the same quality of judgment that determines the use of strychnine, bloodletting or any other remedy that does harm by its improper use or abuse. In the administration of this hospital, sentiment has never been permitted to overshadow the welfare of the insane committed to our care. As a matter of fact, restraint is seldom used. It is occasionally substituted for manual restraint when the latter has appeared to be particularly irritating to the patient, whose tendencies with the free use of the limbs would be to do great bodily harm to self or others. These

cases are rare. The form of restraint for the hands that is almost invariably used as being the most "humane," is the soft canvass waist with endless sleeves. No device is resorted to for restraining patients in bed, as none has been devised, which, in our opinion, did more good than harm. The "protection sheet" was tried, but was condemned as being too harsh and uncomfortable for the patient. A special nurse in these cases has no proper substitute.

38. State your views as to the propriety and value of mechanical restraint in the treatment of the insane?

Answer. The only value of restraint of any kind, is to obtain a very definite therapeutical object. Whether this restraint should be manual or mechanical, is wholly a medical question. Mechanical restraint should never be used for expedient purposes. The absolute prohibition of mechanical restraint is as purely nonsensical and sentimental as would be the prohibition of forcible feeding. Either process is unpleasant to the patient, but is sometimes necessary for his welfare and cure, and to save life.

39. Are so-called motor depressants or other drugs used as substitutes for mechanical restraint, and, if so, under what circumstances?

Answer. No.

40. Is the "open-door" system in operation in the hospital, and, if so, to what extent?

Answer. We have wards where patients are permitted to go out and in at will. As a matter of experiment, the entire east wing of our central group which contains all classes of patients, was administered with unlocked doors during the last summer, without any untoward results. However, like all "open-door" systems, the open doors required more or less surveillance. It would be a simple matter to collect all paroled patients in wards together and unlock the doors, but it would disturb other features of classification that have a greater medical importance.

41. State your views, based on personal experience and observation, or otherwise, of the value of the "open-door" system.

Answer. I do not consider its value any greater than the parole system, allowing patients certain limits without attendance. It works harm, also, in depriving other patients of ward advantages, whose morbid impulses render them unfit to be at large without attendance.

42. To what extent, if any, has the use of window guards been abandoned in the hospital? In your opinion, would it be desirable, or even feasible, to abandon the use of window guards generally?

Answer. Window guards were never constructed in this hospital for the first story or day rooms for patients. The windows of the second story are screened by a light wire diamond-shaped screen, four-inch mesh. I think it would neither be desirable nor feasible to abandon the use of guards on the second-story windows, unless they were substituted by locked windows or some method whereby patients could be prevented from precipitating themselves to the ground below.

43. To what extent, if any, are airing courts or inclosed exercise yards in use in the hospital? State your opinion as to the necessity and usefulness of the same.

Answer. There are no inclosed yards upon the hospital premises. They are not considered either necessary or useful.

44. Give the ratio of ward attendants, exclusive of supervisors, by sexes, to patients; also separately, by sexes, the ratio of day and night attendants to patients.

Answer. Approximately the ratio of day attendants to patients is 1 to 8, and of night attendants, 1 to 45. The ratio differs very much in accordance with the class of patients cared for, but is approximately the same for each sex.

45. Are women attendants employed on the men's wards, and, if so, to what extent?

Answer. Yes, to a limited extent. We have one ward for sick men, those who are largely bed-ridden, and cases of acute melancholia, that is wholly cared for by women nurses, a man being called at intervals only to do the heaviest lifting. In another large ward for the infirm class, chiefly cases of terminal dementia, there are two women nurses.

46. State your views as to the desirability of having women nurses on the men's wards, and as to how far it would be feasible to extend the practice.

Answer. I consider it very desirable to have women nurses upon men's wards, but I do not believe it feasible to have a mixed service to any great extent. For the sick in bed and for convalescent wards, it may become practicable to have all the nurses and attendants women. I believe they must be all of one sex, however, to develop a full degree of usefulness. Our experience with the mixed service has not been a successful one.

47. State separately the minimum and maximum rate of wages paid to men and women attendants or nurses, and the rule governing the promotion in pay of this class of employes; also all allowances of nurses or attendants, including wearing apparel, hours of duty, leave of absence, etc., and whether, in your opinion, these are sufficient to secure efficiency and reasonable permanency of service.

Answer. Women are paid during probation, from one to three months, \$12 per month. When they are employed they are paid \$14 for the first six months, \$15 for the second six months, and \$16 at the end of the year, unless they have previously been promoted. Men receive during probation \$18; when employed, \$20; in six months, \$21; at the end of the year, \$22. The allowances are board and washing. Uniforms are paid for by them at actual cost. Day attendants or nurses are on duty from 6 A. M. until 7 P. M., except upon such evenings as they relieve night attendants, when they remain on duty until 10 P. M. Night attendants are on duty from 7 P. M. until 6 A. M. All attendants and nurses receive two weeks vacation annually without loss of pay, every fourteenth day and every third Sunday, making a total of fifty-seven days annual relief from duty. With the exception of the pay, which is none too large, I think the allowances of time, etc., are sufficient.

48. Give the percentage of difference in wages paid to men and women attendants and nurses.

Answer. The average paid women attendants and nurses is 73 per cent. of the average paid to men.

49. State the aggregate number of nurses or attendants in the employ of the hospital on September 30, 1894, and the number of resignations and dismissals occurring during the year; also the principal causes of such resignations and dismissals, together with any suggestions, the adoption of which in your judgment would tend to minimize changes in this class of employes.

Answer. One hundred and sixty-one. There were forty-two resignations and twenty-three dismissals during the year. The principal causes of resignations were, in order of their importance, dissatisfaction with the character of the service, ill health, marriage, self-recognized incompetency and business reasons. Causes for dismissals were: Incompetency, violation of the "rules and regulations," chiefly in abuse of either patients or property, intoxication and immorality.

50. Are attendants provided with "homes" or lodgings apart from the wards, and if so, to what extent?

Answer. Yes; in two groups of buildings, and the nurses' house for the central hospital group is erected and inclosed. When it is finished all of our nurses will be domiciled in buildings separate from the wards.

51. Would it, in your judgment, add to the efficiency of the service if substantially all of the attendants were thus provided for?

Answer. Unquestionably. Wards should be used only for the care of patients.

52. Is there an organized training school for nurses in the hospital, and, if so, state in detail how long it has been in operation, by whom conducted and the scope of its teachings, as regards subjects taught and term of study required; also if it includes both sexes?

Answer. There was a training school for nurses organized for both sexes during the first year the hospital was in operation, and the school is now in its fifth year. It is conducted chiefly by the assistant physicians and medical superintendent. The hospital supervisor for women gives clinical instruction. The course of training covers two school years — the terms opening in September and closing in May. The method of instruction is divided into three departments — lectures, recitations and clinics. The lectures are given weekly by the first and second assistant physicians and the superintendent. The recitations are also held weekly by the junior assistants and woman assistant physician. The chief cook gives practical instruction in the preparation of food for the sick, and the supervisor gives clinical instruction in thermometry, catheterization, massage, etc. The “scope” of its teachings includes anatomy, physiology, hygiene, general nursing, monthly nursing, surgical nursing, chemistry of food, preparation of food, dosage, preventive medicine, aseptic treatment, nervous nursing, insanity and its nursing, and ethics.

53. In your opinion are the present allowances of food supplies sufficient in quantity, quality and variety to fully meet the requirements of the inmates; and are the facilities for preparing and serving the same ample to insure the best results, both as regards the welfare of patients and economy in the consumption and serving of food?

Answer. Yes, with few exceptions. The allowance of sugar is two ounces per capita, which does not appear to be sufficient. The facilities for preparing and serving the food seem to be efficient, but, like all other operative departments, there is probably opportunity for improvement.

54. In your opinion would it tend to promote the recovery of patients, as well as to insure greater economy in the consumption of food supplies, if a higher class of cooks were employed than is now the case, or would you advise that one competent cook be employed to supervise and direct the whole operation of preparing and cooking food for patients, with authority to control subordinate employes as far as needed to make an efficient kitchen service?

Answer. I have no doubt that if our four kitchens for patients were each manned with cooks highly accomplished in their calling there

might be more or less economy in the preparation of food over what now prevails. I do not believe, however, that the recovery of patients would be promoted thereby. In our present organization we have one "kitchen and food inspector" who is an accomplished cook, and who has the direct supervision of all kitchens and food preparation. There is an assistant cook in each kitchen wholly under his direction. His functions are to see that proper economy is practiced, that food is properly prepared and served, that assistant cooks are properly instructed and that others are instructed in the art of cooking, particularly students of the training school. This service has given good satisfaction, and it appears to me can only be improved upon by having a competent chef in each kitchen.

55. Are congregate dining-rooms in operation in the hospital, and, if so, to what extent, and what, if any, in your opinion, are the advantages of these as compared with ward dining-rooms?

Answer. Yes; one dining-room seats 360 patients, and two others 125 each. Briefly stated, the advantage of a congregate dining-room is, that patients can come to their food instead of having it brought to them. There is no moral effect subserved by congregating for meals. For acute cases it is absolutely hurtful, and ward dining-rooms are to be preferred, as giving that segregation of classes that is demanded during the acute stage of insanity.

56. Do patients of both sexes dine, in any instances, in a common dining-room, and do you regard such arrangement as desirable?

Answer. Yes; in our larger congregate dining-room as a provisional arrangement, but there is nothing desirable in it, although there can be no serious objection urged against it.

57. To what extent, if any, and for what class of patients are associate dormitories in use in the hospital? Do you favor such an arrangement, and, if so, why; also state the maximum and minimum number of patients which, in your judgment, could safely and properly be thus provided for in one dormitory?

Answer. Associate dormitories are used for about sixty per cent. of the patients in the hospital, ranging in size from three to ninety beds each. In a large proportion of the cases whose sleeping arrangements are associated, the purpose is one of expediency and economy. Melancholia and secondary psychoses from neurasthenia of the acute class, require such constant watching and attention that they are associated for prudential reasons. The infirm and the untidy from mental weakness can be cared for with greater ease in large rooms. The mass of these cases are indifferent to association. Almost without exception

the patient who is not demented prefers a single room. No associate dormitory should exceed seventy-five beds, or be less than three beds.

58. Is the system of "spray" or "rain" baths in operation in the hospital, and, if so, to what extent, and what, in your opinion, are the advantages of this method of bathing as compared with tub bathing?

Answer. As before stated, our complete bathing arrangements await the construction of our recreational hall. We now have seven "spray," or more properly named "douche" baths in operation. The advantage of this form of bath over the tub is its greater cleanliness, its freedom from danger, the small likelihood of contagion, the rapidity of operation and its preference by patients.

59. State the rules governing the bathing of patients, as regards frequency, renewal and temperature of water, supply of towels, etc., and to what extent, if any, the bathing is personally supervised by a medical officer.

Answer. The rules governing the bathing of patients are part of the rules and regulations of the hospital established by the board of managers. They are substantially, as regards "frequency, renewal and temperature," that no two patients are to be bathed in the same water; the temperature of the water is tested by the bathing attendant in every instance, and must be made agreeably warm; each patient must have a clean towel; each patient must have a bath at least once a week, or oftener if necessary. The bathing is frequently supervised by the medical officers, but not by any routine requirement.

60. What is the proportion to patients of roller towels actually furnished by the hospital, and to what extent, if any, are individual hand towels supplied; also, to what extent, in your judgment, would it be feasible to supply the lavatories with the latter in lieu of roller towels? Would not the substitution of single hand towels for the roller variety be desirable for sanitary reasons?

Answer. When roller towels were supplied to the wards, the proportion of the towel equipment was four towels, three yards in length, for each patient. For the past year individual hand towels have been supplied, fourteen inches square, in lieu of roller towels, in the proportion of twenty hand towels to each patient, and two bath towels one yard in length. The substitution of single hand towels is eminently desirable, not only for sanitary reasons, but from every other consideration.

Respectfully submitted,

P. M. WISE,

Medical Superintendent.

December 18, 1894.

ST. LAWRENCE STATE HOSPITAL.

MEDICAL REPORTS.

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13

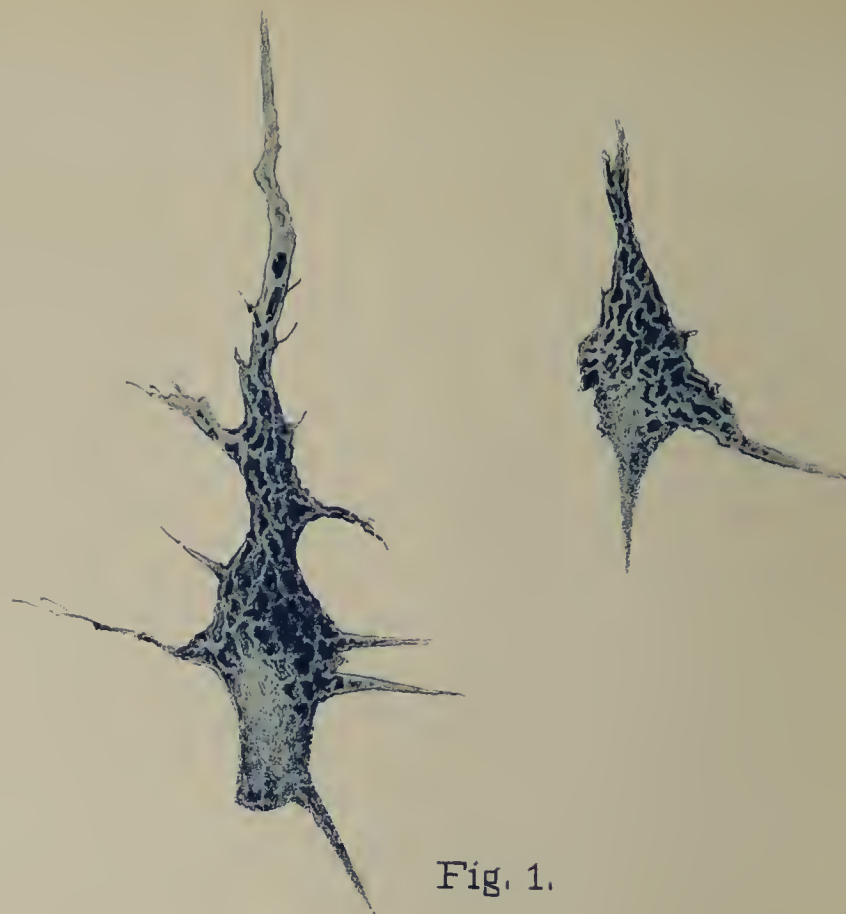


Fig. 1.

×325. Degeneration of large cells in motor area
of cortex, Nissl's method.



Fig. 2.

×240. Degeneration of large cells in motor area;
fresh examination; Nissl's method modified.

LABORATORY METHODS.

By ROBERT G. COOK, M. D., Assistant Physician.

The object of this report is to interest the medical officers of hospitals for the insane in pathological work, for it is to them that the medical profession must look for progress in cerebral pathology. It is not probable that many of the States will provide a special pathologist for each hospital, though every one with a population of over six hundred could supply material enough to keep a man busy. A central laboratory for each State would be of limited value because of necessity only accessible to that hospital at which it is located. It might be of great service as a place where assistant physicians could learn the necessary technique, but most of the actual work must be performed where the autopsy is done. Text books on the subject of general pathology and even those on cerebral pathology give a great variety of methods, and it is extremely difficult for a physician in hospital practice to select those which will give good results without a special training in pathology, unless he wastes time and patience to sift out the many processes which are of little practical value. It therefore seems possible that it may be of service to physicians in other hospitals to describe those methods which have already proved of special value in the laboratory of the St. Lawrence State Hospital. The methods of preparing microscopical and gross specimens which are most used at the present time are therefore given in full, although most of them can be found in recent books. "The Microscopical Examination of the Human Brain," by Edwin Goodall, B. S., M. R. C. S., published by Ballière, Tindall & Cox, London, is a recent book of great value, as are the works of Bevan Lewis, Delafield and Prudden, Hamilton and Lee, to all of which the writer is indebted.

HARDENING.

It is, of course, impossible in this paper to discuss at length the many various methods of hardening brain tissue to prepare for section cutting. Hardening is accomplished either by means of chemical action or by cold great enough to freeze the tissues. Alcohol and solutions of the chrome salts are the most useful of the hardening

fluids. The ordinary method of hardening in alcohol or in alcohol and water is of little value in work on the nervous system. It causes shrinkage of nerve cells so that their structure is not clear, and it is not suitable for the stains needed for nerve fibers. Plate IV, fig. 2, shows nerve cells of the cortex which have been hardened by alcohol and stained in borax-carmin, and a large space is seen about the cell caused by its shrinkage. In plate II, fig. 2, where nerve cells are shown prepared by the Bevan Lewis method, the spaces about them are hardly perceptible.

Alcohol can be used in the ordinary way, however, if one wishes to stain visceral organs, blood vessels, meninges or tumors. Nissl hardens brain in absolute alcohol for only twenty-four hours, and by a special method of staining (described later) shows a structure of nerve cells not before seen, and it is possible that absolute alcohol may be found of value in hardening brain for other stains, but it has not been extensively used as yet. It is also possible to prevent somewhat the shrinkage of cells caused by alcohol by first fixing the specimen in corrosive sublimate, and then placing it in a weak solution of alcohol and gradually increasing the strength of the alcohol. The process in detail is as follows: Place pieces of brain in the following solution, which must be dissolved by the aid of heat:

Corrosive sublimate..... 7.5 gm.

Salt solution (one-half per cent.).. 100 c. c.

Leave them in the above for twenty-four hours, wash for twenty-four hours in running water, and then place in thirty per cent. alcohol. Leave in this for twenty-four hours, and then for the same length of time in a seventy per cent. alcohol and finally in absolute alcohol.

Bichromate of potash is much used for hardening the nerve structures, either alone or in the form of Müller's fluid.* It is of special value in preparing to stain nerve fibers by Weigert's method or its modifications, but is not of value if the nerve cells are to be studied except by the Golgi-Cajal method, which is described in full under special methods of staining. The chrome salts must be used to harden nerve tissue which is to be stained for fibers by any of the modifications of the Weigert method. The specimen may be placed immediately in a one-half per cent. solution of bichromate of potash, which should be changed daily and gradually made stronger until a four per cent. solution is used. This should then be changed every week for six or seven weeks, when the specimen will be hard enough to cut. If it is necessary to keep it longer before cutting, it should be placed in

*Potassium bichromate, two parts; potassium sulphate, one part; water, 100 parts.

a one-half per cent. solution, to which a little camphor is added, as brain tissue becomes brittle or granular if left very long in a strong solution of bichromate of potash.

Müller's fluid may be used instead of the weak solution of bichromate of potash at the beginning. It should be changed at the end of three days, and in three days more a two per cent. solution of bichromate of potash should be substituted for it; and, at the end of the second week, a four per cent. solution of bichromate of potash should be used and changed weekly until the specimen is properly hardened. If chrome-hardened specimens are to be used for other stains than Weigert's or its modifications, they may be put in alcohol for twenty-four hours before the weak solution of bichromate of potash is used, as hardening is more rapid and maceration is prevented; or alcohol may be used after the chrome salts, when the excess of chrome must first be removed by water. All the chrome solutions should be kept in the dark as they are changed by the action of light.

SECTION CUTTING.

If the specimen is of firm tissue and well hardened it can be cut by a sliding microtome without infiltration with celloidin. A few drops of thick solution of celloidin (celloidin, 50 grm., absolute alcohol, 75 c. c.; ether, 75 c. c.) are placed on a block of wood of suitable size, and the specimen is pressed down on it so that the celloidin surrounds it at the lower part. The celloidin is then allowed to harden for about fifteen minutes in the air, when the specimen is placed in alcohol, which hardens the celloidin in about half an hour sufficiently to hold the specimen to the wood. Other substances, such as gum or gelatin are often used, instead of the celloidin, but none are more rapid or sure. If the tissue is not firm after hardening, either because of its normal structure or of disease, or if large sections are desired, it is best to infiltrate the specimen with celloidin. The specimen is dehydrated in absolute alcohol and allowed to stand for twenty-four hours in a mixture of equal parts of absolute alcohol and ether. If it has been hardened in chrome it should be first washed in water and then put in alcohol for twenty-four hours. It is then placed in a thin solution of celloidin (celloidin 25 grm., absolute alcohol 75 grm., ether 75 grm.), and allowed to stand for four days, when it is transferred to the thick solution of celloidin mentioned above, where it should remain for twenty-four hours. It is then placed in a pill box or in a box made by winding a sheet of paper about a straight cork, which is filled with a thick celloidin solution. This should stand in the air for a

period of time varying from fifteen minutes to one hour, according to the size of the box, when it is placed in alcohol, where the celloidin becomes hard in twenty-four hours. If the section is small it is necessary to have a piece of wood or cork under it in order to fasten it in the clamp of the microtome. If the tissue is well hardened or infiltrated with celloidin, the sections can be removed from the surface of the knife, which is kept wet with alcohol by a stream of alcohol poured from a bottle or pipette, but if the specimens are large or friable it is sometimes necessary to immerse the whole microtome in alcohol. It is also a good plan in cutting large sections to have the microtome tipped up on a stand so that the alcohol will run back from the edge and toward the "toe" of the knife. The sections can then be made to float off into a dish of alcohol held under the end of the knife. It is necessary to use alcohol freely to preserve sections of large size or of friable tissue by either plan, and a sharp knife is a most essential element to success in section cutting.

STAINING.

There are a great many stains in use at the present time, and each pathologist has his favorites, so that text-books on the subject are bewildering in the extreme to one who is in search of certain results. The special methods of staining nerve cells which are of the greatest value are the Bevan Lewis or fresh method, which requires anilin blue-black of English manufacture; Nissl's method, needing metheleneblau-patent B; and the Golgi-Cajal method of staining by nitrate of silver. For staining medullated nerve fibers Pal's modification of Weigert's method is extremely useful, but the original one is still much used. It is well to be familiar with a good stain for general work to use for any tissues that do not require special methods, and for this purpose there is, perhaps, nothing better than double staining in hæmatoxylin and eosin. A reliable carmine stain, such as an alcoholic solution of borax-carmine, is useful either as a single stain or to bring out nerve cells after staining the fibers by one of the special methods.

BEVAN LEWIS METHOD.

To get good results by this method, it is absolutely necessary to use a free hand microtome, because the knife must be dry on the under surface before cutting, and the section must be floated in water immediately after it is made. The knife should be hollow ground on both surfaces, and should be about six inches long and should touch a flat surface throughout the entire length of both edge and back. It is extremely



Fig. 1.

x240. Vacuolation of nuclei; alcoholic dementia.
Bevan Lewis' method.



Fig. 2.

x240 Fuscous degeneration of cortical cells.
Bevan Lewis' method.

difficult to get good sections unless the knife does touch at all points, as it is then necessary to press the edge of the knife down hard against the glass table. This glass must be perfectly smooth and kept clean and free from scratches or the knife will become dull so rapidly that good sections can not be obtained. Considerable practice is necessary to cut well by this method which is, of course, much more difficult than the manipulation of a sliding microtome. If ether is used by means of a hand spray it is well to have an assistant to attend to the freezing while the operator cuts and fixes the sections, but one man can manage all the details if he become expert enough to proceed rapidly. If a cylinder of oxygen is used for freezing or a cylinder of compressed air to cause the ether spray, one person can easily manage the whole process. A small piece of cortex with pia mater attached (about one-third of an inch in each dimension) is removed as early as possible and placed on the drum of the freezing microtome with the pia turned toward the operator. A drop of water is used to fasten the brain to the plate when frozen. The knife must be thoroughly wet, that is, it must retain water all over its upper surface. To get it to do this it may be repeatedly flooded with ether and plunged into water, but a better way is to make a cut in the white matter of brain before the knife is put into water.

When the specimen is properly frozen the knife is rapidly dried on its under surface by drawing it across a towel on the operator's knee, and a clean steady cut is made by pushing the knife held firmly on the glass table nearly straight across the specimen. The section is then floated by immersing the knife in water, and the operation is repeated until several sections are cut. These sections are then taken from the water on slides which have been thoroughly cleaned and kept in water. The slides should be held at right angles to the floating specimen and drawn straight up when they touch, and the section will then lie flat on the slide. It is then fixed by a one-quarter per cent. aqueous solution of osmic acid. A few drops of the acid solution are allowed to flow from a pipette first under the section and then a few more are dropped on the section, and after about one minute the slide is placed in water. If the fixation is of proper amount the section sinks in the water and there is no marked change in its color from the effect of the acid, but if the osmic acid has not acted on all parts of the section it floats, and if too long it turns dark. The sections are lifted from the water on slides or transferred to a dish and stained for about one hour in a one-quarter per cent. aqueous solution of anilin blue-black. They are then washed in water and then in distilled water. If they are stained too deeply the excess of stain may

be removed by a weak solution of acetic acid. They are then lifted on slides (care being taken that each section is flat) and allowed to dry. When thoroughly dried they are mounted in balsam.

This method shows nerve cells which are not shrunk as are those hardened in alcohol by the older methods as is shown by the illustration in plates II and IV, figs. 2 and 2. It is of great value in the study of the cell layers in normal brains and of the changes in nerve and connective tissue cells in disease, especially in general paralysis of the insane, epilepsy, alcoholism, and terminal dementia. Figure 1, plate II, shows vacuolation of the nuclei of nerve cells in a case of terminal dementia in which the original cause of insanity was probably the abuse of alcohol. Figure 2, plate II, shows fuscous degeneration in a case of senile dementia with marked atrophy of the convolutions, and figure 3, plate III, shows scavenger cells or as they are sometimes called Dieter's cells.

NISSL'S METHOD.

This is a recent and valuable addition to the special methods of staining nerve cells, as the structure of the cell is shown more clearly than by any other method, and it is claimed that changes occur which are not shown by any other method of staining. The method is as follows: Small pieces of cortex are hardened for twenty-four hours in absolute alcohol from which all the water is abstracted by sulphate of copper, from which the water of crystallization has been driven by heat. The specimens are then fixed on blocks of wood by celloidin, without being imbedded, and cut into alcohol by a sliding microtome. The sections are then transferred to a one-half per cent. aqueous solution of methylene-blue-patent-B in a watch glass. According to the original method they are then slowly heated over a flame until bubbles begin to form, but it has been found that if the stain is heated until it boils, thin sections tend to roll up and fold so that many of them are ruined. This tendency is lessened if the stain is slowly heated only until vapor comes off in considerable quantity, allowed to stand for five minutes, and then again heated until vapor rises. The staining seems to be as good by this modified method as by the original one. After the stain has cooled the sections are transferred to the differentiating solution (anilin oil 10 c. c., absolute alcohol 100 c. c.), and are allowed to remain until no more blue color comes from them. It is well to transfer them to a second bath of this anilin-alcohol as the first becomes decidedly clouded by the stain. A section is then placed on a slide and dried by filter

paper by pressure. Several drops of oil of origanum are then allowed to flow over the section and it is again dried by filter paper by pressure. It is then flooded with benzine or benzole to remove the origanum oil, and before the benzine has entirely evaporated the specimen is mounted in colophonium dissolved in benzine. Nissl directs that the benzine be burned off, but it does not seem necessary to the process and adds to its difficulty.

The cell structure shown by this method is best seen in the large motor cells of the upper part of the ascending parietal convolutions, **A** healthy cell is seen to be full of small rods stained blue with narrow unstained areas between them while the nucleus is left unstained and the nucleolus is stained dark blue. In diseased cells these rods are partially or wholly broken down and less regularly arranged. It is claimed that changes in cell structure can be found in acute mania where other methods show nothing abnormal. Figure 1, plate I, shows large cells from the motor area of the upper portion of the ascending parietal convolution in a case of general paralysis of the insane. The degeneration of the rods of which the cell is composed is most marked at the lower end of the cell **A**, while at the other end of the cell the arrangement is more nearly normal.

It has been claimed that the apparent cell structure obtained by Nissl's method is an artefact, and the rapid hardening in absolute alcohol, together with the staining by the aid of heat, gave considerable weight to this opinion, but I have succeeded in showing the same structure of these cells without the use of either alcohol or heat in the following way. Sections of fresh brain were frozen and cut and then fixed in a one-quarter per cent. solution of osmic acid as in the Bevan-Lewis method. They were then stained for five minutes in a one eighth per cent. solution of toluidin blue, washed in water, and then in water acidulated with acetic acid until no more blue color was given off. The sections were then transferred to distilled water, floated on slides and allowed to dry; and when thoroughly dried, mounted in balsam. The cell structure was shown to be the same as by Nissl's method, but the procedure is free from the most suspicious opportunities of producing artefacts. The fresh sections were simply overstained and then the excess was removed by the weak solution of acetic acid. Fig. 2, plate I, shows cells which were stained by toluidin blue after cutting and fixing by the Bevan Lewis method. It is not claimed for this method that it has any special advantage over that of Nissl but it is of value in confirming the fact that the rod-like

structure of nerve cells is a normal structure and not the result of chemical reagents.

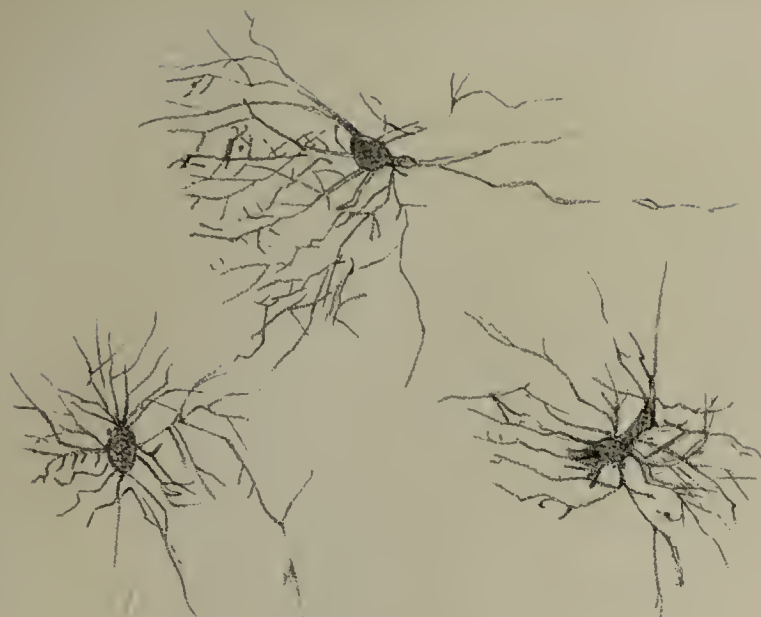
GOLGI-CAJAL METHOD.

This method has proved of great value in the study of embryonic brains and of those of young animals, but few results have yet been published from its use in human pathology, and its value in this line of work is not yet established. It seems to promise much in the study of changes in nerve cells and fibers and in connective tissue cells though the minute structure of the cell bodies is not shown. The uncertainty of its results is a great drawback to the use of the method in the hospital laboratory, but repeated efforts are often rewarded by fine specimens. Small pieces of brain, not more than one-quarter of an inch in each dimension, are left in the dark for from two to eight days in the following mixture:

Bichromate of potash 3 per cent. solution . . .	100 c. c.
Osmic acid 1 per cent. solution . . .	25 c. c.

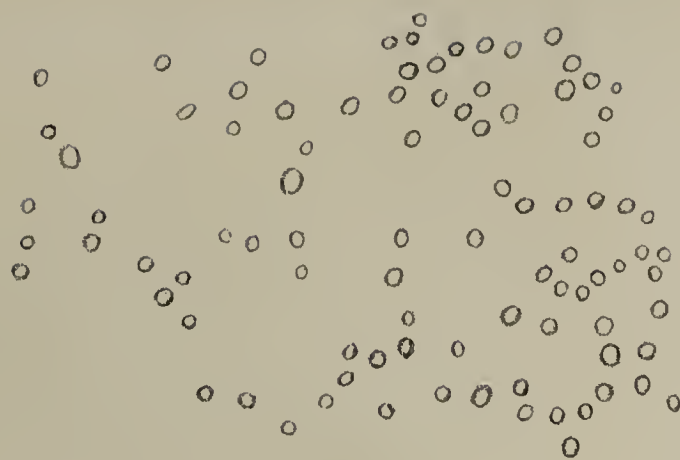
For embryonic brains 24 hours is all the time required but it is necessary to harden adult tissue much longer than this especially if nerve cells and fibers are to be stained. It is necessary to use a comparatively large quantity of the solution, at least 100 c. c. for each specimen, and it should be used but once. When hardened the specimen is washed in water and then left in a small quantity of a three-quarter per cent. solution of nitrate of silver in the dark for fifteen minutes. It is then placed in a fresh solution of silver nitrate of the same strength, of which it is best to use at least 100 c. c. The bottle containing this solution and the specimen is placed in an incubator at a temperature of from 25° C. to 35° C. according to the elements to be stained. If one wishes to stain nerve cells the temperature should be about 25°, but if neuroglia cells are the objects to be brought out it should be about 35°. The staining takes from two to six days and, as the process is very uncertain, some writers advise the cutting of sections at intervals to see if the silver has penetrated the specimen. If the penetration is complete the color is dark red or brown. Crystals of silver salts often form on the surface of the tissue and sometimes extend into it and to prevent this celloidin, gelatin and blood are recommended by various pathologists, but they do not always serve their purpose. When properly stained the specimen is placed in alcohol for a few minutes and the excess of silver is removed by a camel's hair brush. If it is well hardened it is simply fastened on a block of wood by celloidin and cut into alcohol, but it is necessary to partially infiltrate the specimen if it is soft, by leaving it for about fifteen minutes in a thin solution of

Fig. 1.



Scavenger cells; Chronic Mania.
Golgi-Cajal method. $\times 480$.

Fig. 2.



Degeneration of posterior columns
in locomotor ataxia. $\times 240$.

Fig. 3.



Scavenger cells; senile
dementia.
Bever Lewis' method. $\times 480$.

Fig. 4.



Large nerve cells, motor
cortex.
Golgi-Cajal method. $\times 240$.

celloidin. Sections should be cut immediately and the specimen should not be left in alcohol longer than is necessary to harden the celloidin. Sections are dehydrated rapidly in absolute alcohol, cleared in xylol or a mixture of equal parts of xylol and pyridin (recommended by Andriezen to prevent brittleness), transferred to slides where the xylol is removed by filter paper by pressure. They are covered by a thick solution of dammar varnish dissolved in xylol and are left without cover glasses. Both Andriezen and Goodall recommend that no cover be applied even after the xylol has evaporated and say that the specimen will not keep if it is covered, but it is not yet certain that they are permanent when left uncovered. Nerve cells, glia cells, and their processes are stained black, and blood vessels are also shown.

Figure 4, plate III, shows large nerve cells and their processes which are brought out much better than the cells themselves. Figure 1, plate III, shows scavenger cells. Both specimens are taken from a case of chronic mania.

WEIGERT-PAL METHOD.

This method is one of the best for staining medullated nerve fibers and to show degenerated tracts. The tissue must be hardened in chrome, and it is important that it should not be allowed to remain in the hardening fluid too long, as the sections will then be so brittle that they will not stand the necessary manipulation. It is best to infiltrate and imbed the specimen in celloidin, even if it is small. Sections are cut into alcohol and washed in distilled water. If they are not of a greenish yellow color they have not enough chrome to take up the stain and should be immersed for twenty-four hours in a two per cent. solution of bichromate of potash. The excess of chrome is then washed out in distilled water and the sections are stained for from twenty-four to forty-eight hours in Weigert's hæmatoxylin :

Hæmatoxylin, 1 gm.

Alcohol, 10 c. c.

Distilled water, 90 c. c.

(This should stand for at least two weeks and should be filtered before use.) To this stain a saturated solution of lithium carbonate is added in sufficient quantity to give a good color—from five to ten drops of lithium carbonate solution to each watch glass of stain. It is rarely necessary to stain the sections much over twenty-four hours, but they should be of a dark blue color (almost black). They are then washed in distilled water and placed in a one-quarter per cent. solution

of permanganate of potash for from thirty seconds to one minute. This is then drained off and the differentiating solution is poured on and allowed to remain until the gray matter is decolorized and the white matter appears blue-black or brown.

Differentiating solution:

Oxalic acid, 1 grm.

Sulphite of potash, 1 grm.

Distilled water, 200 c. c.

If the differentiation does not seem sufficient, the solution of permanganate of potash may be poured on again for a few seconds and the bath in the differentiating solution is repeated. It is best to use the permanganate a short time for trial on a section at first, as it is safer to repeat the process than to run the risk of having a number of sections exposed too long to the action of the permanganate, in which case most of the stain will be removed. When differentiation is complete the sections are washed in distilled water, dehydrated in alcohol and then in absolute alcohol, cleared in xylol and mounted in xylol balsam. If sections are allowed to remain in water to which a few drops of saturated solution of lithium carbonate have been added for about half an hour before dehydration, the fibers have a good blue color and are more distinct. If double staining is desired it is done by alum or borax-carmines after washing in distilled water and the sections are then washed again, dehydrated, cleared and mounted.

Medullated fibers appear dark brown or dark blue against a light yellow field. It is claimed for this modification of Weigert's stain that it gives the best results if double staining is desired because the field is thoroughly decolorized. Cross sections of medullated fibers appear as small rings.

Figure 2, plate III, shows the fibers in the posterior column of the cord of a case of locomotor ataxia. The medullary sheath of the fibers is stained dark blue, while the center of the fiber and the back ground is left unstained.

HÆMATOXYLIN AND EOSIN.

This method of staining ordinary tissues is recommended by Delafield and Prudden, and the solution of hæmatoxylin is usually called "Delafield's." It is made as follows: "To make 600 c. c. of the solution, take 400 c. c. saturated solution of ammonia alum, and add to this four grams crystallized hæmatoxylin dissolved in twenty-five c. c. strong alcohol. This is exposed to the light in an unstoppered bottle, for three or four days, when the color will gradually change from a

dirty red to a deep bluish purple color. The solution is now filtered and 100 c. c. each of glycerine and Hastings' wood naphtha are added. After standing for a day or two, the solution is filtered, allowed to stand for another day and again filtered, and this is repeated until a sediment no longer forms in the fluid." This solution is diluted before use in the proportion of one part stain to from ten to twenty parts of distilled water. Sections are stained from one to ten minutes, according to the structure of the specimen. It is well to try one section on a slide for a short time, wash and examine in water with a low power lens to see if the section is properly stained. For ordinary sections hardened in alcohol two or three minutes usually gives a good result with a stain used in the proportion of one part stain to fifteen parts of distilled water. After staining, the section is washed in distilled water, dehydrated in alcohol and then in absolute alcohol, cleared in oil of cloves or oil of origanum and mounted in balsam. To double stain with eosin add a sufficient quantity of eosin to the absolute alcohol, to give it a decided yellow color.

This stain is not specially adapted to bring out nervous structures but is very good for general work. Nuclei are stained dark purple and cell bodies a lighter purple; and if eosin is used the connective tissue is red. Figure 3, plate IV, shows a section of a small, round-celled sarcoma stained by Delafield's hæmatoxylin and eosin.

CLEARING AND MOUNTING.

It is unnecessary to take up these subjects in detail, as the proper method has been given with each of the special stains. For clearing, oil of cloves, oil of origanum, xylol and benzole; and for mounting, balsam, colophonium and dammar varnish are necessary to carry out the processes which have been described.

GENERAL PROCEDURE.

It is necessary to perform the autopsy as soon after death as possible, for post-mortem changes in nerve tissues are extremely rapid. The medical staff of a hospital for the insane can accomplish much in the way of pathological investigation, if several of them are willing to give up some time to the work. A long training in the technique is not necessary, though, of course, it is extremely valuable. If there is no regular pathologist it is well for each physician to make the autopsy in the case of his own patient and he should dictate the gross lesions found at the time, if possible, and should follow a fixed plan, such as that given in

Howden's Index Pathologicus. A piece of brain should be removed from whatever area is to be specially studied and given to one of the staff, who should freeze it and proceed according to the Bevan Lewis method. Another piece of brain should be placed in absolute alcohol to harden for Nissl's method, or some of the frozen sections may be stained in toluidin blue and treated with weak acetic acid to show the same minute cell structure. One or more portions of the cortex should also be prepared by the Golgi-Cajal method if time allows, and the Weigert-Pal method should be used when it is desirable to stain medullated nerve fibers. If any organ outside the nervous system is to be prepared for microscopical study small portions of it should be placed in alcohol of weak strength to be stained by hæmatoxylin and eosin. It is not to be supposed that the methods described in this report are all that are good in this line of work, but simply that they have proved of value and that they will repay careful work by showing interesting lesions in disease of brain and spinal cord. It is a disadvantage that the special methods required for nerve tissues are difficult and sometimes uncertain, but success is all the more gratifying.

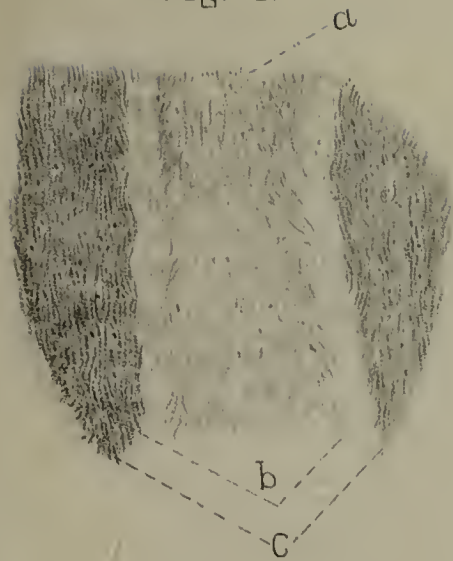
GROSS SPECIMENS.

When it is desirable to save the entire brain, or large portions of it, to show gross lesions, the specimen can be placed in a mixture of equal parts of alcohol and water. This should be changed several times until the fluid remains clear. Glycerine and water in equal proportion, to which a small quantity of carbolic or boracic acid should be added, make a good preservative fluid, and Müller's fluid is also used, and can be followed by glycerine and finally by alcohol.

GIACOMINI'S METHOD.

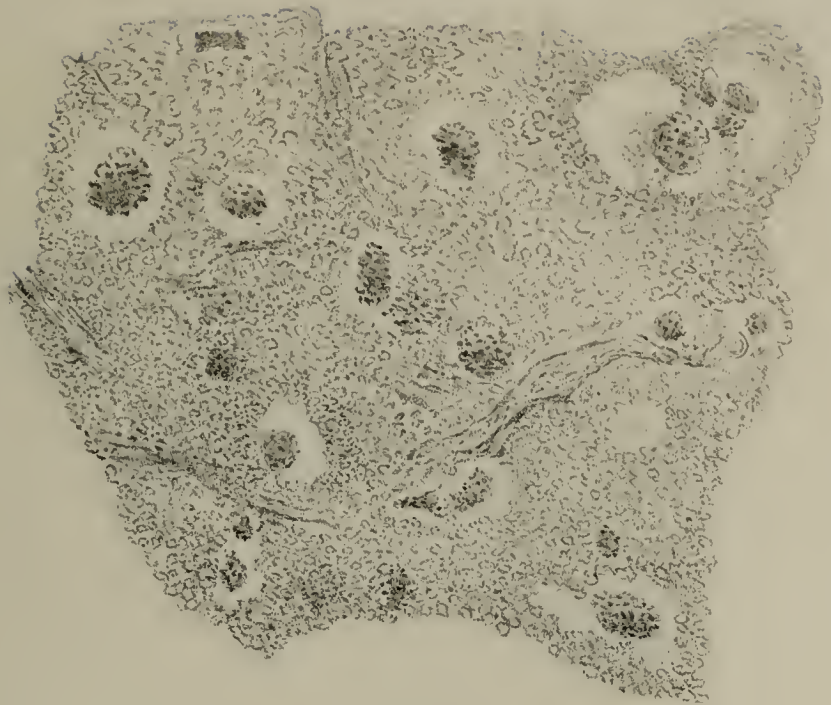
The great advantage of this method is that a permanent specimen is obtained, which can be varnished and allowed to remain exposed to the air. It is especially useful to preserve lesions on the surface of the cortex, but can also be used for dissections. The brain is placed in a saturated solution of chloride of zinc, with the pia mater left on, and should be turned frequently, as it floats with part of its surface exposed. On the second day the membranes are stripped off and the brain is returned to the zinc solution and left there for from four to six months. The original method did not require such a long stay in the zinc solution, but it has been found at the West Riding Asylum, at Wakefield, that the specimens are more permanent if left for this length of time. The specimen is transferred to alcohol and left there

Fig. 1.



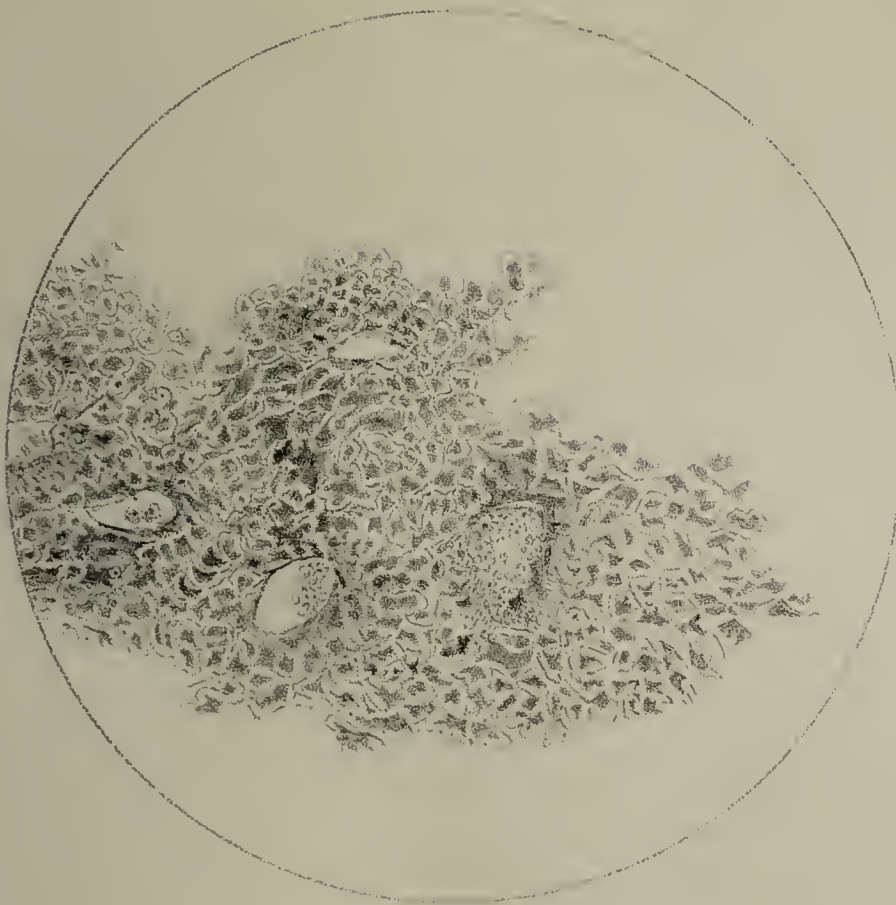
- a.—Posterior columns
showing degeneration
b.—Posterior horns.
c.—Lateral columns.

Fig. 2.



Cortical cells, hardened in alcohol
and stained in carmine, showing
shrinkage. $\times 480$.

Fig. 3.



Small, round cell, Sarcoma.
Haematoxylin-eosin stain. $\times 240$.

for two weeks, and is then allowed to remain in pure glycerine for from three to four months, when it is wrapped in soft cloth until dry, when the surface is varnished.

CASTS.

Casts of the brain may be made of plaster or of a mixture of glue and molasses as recommended by Goodall. The mold is made of paraffine, which is poured over each hemisphere, separately placed in a dish, with its median surface down. The paraffine should be just above the melting point, and should be poured on slowly so that the brain is not injured by the heat. It is well to take at least ten minutes to pour on the melted paraffine, and as soon as its surface is hard, the dish containing it is placed in cold water. Cut the paraffine free from the dish and allow the brain to slide from the mold. To make a plaster cast, mix plaster and water with enough salt to make it set quickly and fill the mold ; and when the plaster has set melt off the paraffine in a dish. The mixture of glue and molasses is that which is used for printers' rollers and melts at a lower temperature than the paraffine, but must not be hot enough to affect the mold. If whiting is mixed with this material the color resembles that of brain, so that the cast is a good imitation of a hardened specimen. A piece of tape put in the mixture before the mold is full is useful in removing the cast.

CLINICAL RECORDS AND BEDSIDE NOTES.

By J. M. MOSHER, M. D.

The curative function of the hospital dates from the occupation of buildings of the Central Hospital Group in the autumn of 1891, when wards for the treatment of acute cases of insanity were opened, the training of nurses was instituted, the resources of the laboratory utilized, and the classification of patients, after the original design, was in part secured by the progress of construction. Departure was made from the symptomatological distinction between quiet and turbulent persons, and consideration was given to the proper environment and treatment of the severe and critical illness almost invariably attendant upon recent insanity, that isolation and quiet might be secured, proximity to the office and physicians, and skillful and constant attendance and observation obtained—in short that the *case* might be individualized and studied as a *case*.

With the acquisition of recent cases the necessity of this provision and the wisdom of the design were revealed. Careful analysis and consideration were demanded by conditions of critical and extreme exhaustion, delirium, the cerebral effects of poisons, as those of epidemic influenza, of drugs, or of auto-infection from defective tissue metabolism, and by the many other ætiological factors of insanity.

For better clinical investigation and recording of the facts of daily observation, a system of bedside notes, based upon the clerical methods of hospitals for the sick and injured was introduced. The experimental and doubtful character of this innovation was felt to be in its possibly deleterious effect upon the delusions and suspicions of the patient. By the exercise of proper caution and tact, inseparable from all relations with the insane, this objection has been met, and the clinical records have become an established feature of the hospital work. These records consist of a series of separate sheets, arranged for the use of the physician and the nurse, that the preliminary mental and physical examination, the treatment and progress of the case may be recorded at the bedside. The initial examination is made, except in critical and urgent cases, on the morning after admission, when the exhaustion

incident upon transfer to the hospital is less prominent. The patient is detained in bed until after this investigation, and the course of treatment is outlined for the nurse by verbal and written instruction.

The clinical history is completed by the nurse's notes, showing in detail the events within the scope of her observation. The records are submitted to the physician at the time of the ward visit, and serve as a reference memorandum for his instruction and guidance.

The series of blanks comprises:

First, for the physician:

(a) A synoptical sheet showing the important introductory facts, the diagnosis and its revision, the result, and the initial history. The work upon this form may be done in the office.

(b) A form for the preliminary mental and physical examination for use at the bedside.

(c) A blank page for continued notes.

Second, for the nurse:

(a) Bedside notes.

(b) Thermograph.

(c) Weight and sleep chart.

To these have been recently added the blood chart, suggested by Dr. Osler, and it is thought the number might be advantageously increased by the use of food and psychological charts.

On the completion of the case the records are filed under a clinical classification, and arranged for binding, with reference to the case book, and when necessary, to the autopsy record.

The clinical records thus described are not intended to replace the regular case books of the institution, but to supplement them by the detailed description of clinical manifestations which is most accurately obtained at the bedside. The keeping of case books is a statutory requirement, and entries, showing from time to time the changes and progress of the patient, are made within the intervals and after the manner prescribed by the State Commission in Lunacy. It has been found that the amount of clerical labor required of the physician has not been increased, but transferred to a more congenial and more reliable field. The recopying, after a day's hard work, of scattered notes and imperfectly memorized data regarding a large number of patients has always been a source of error and incompleteness in the case books of institutions, and has depreciated their value as clinical records. Under the present system the case books are utilized for reference, and the scientific impress of the hospital is made upon the bedside notes. As original records, the latter show the care and treatment

accorded the patient ; as a professional record, they reveal the symptoms of disease, the results of treatment and the scientific progress of the hospital; as a means of discipline for the nurse, they impel accuracy of statement and observation. Their extended application to cases of intercurrent physical disease is a natural development of their use.

SPACE FOR BINDING.

apprehensive - fearful that strangers were attempting

ST. LAWRENCE STATE HOSPITAL, CLINICAL RECORD.

Name *Mary M. McNeill* Date *August 3* 189*4*

Service of Dr. <i>M. McNeill</i>	Diagnosis <i>Acute delirium - Auto-infection</i>
Location <i>East</i> Case Book, <i>17</i>	DESCRIPTION. Skin, Joint, Bone, Lung, Gland. (ERASE UNAFFECTED PARTS.)
Age, <i>36</i> Civil Condition, <i>Widowed</i>	
History of Disease, <i>Melancholia of one week's duration, due to ill-health from child-bearing and lacerated perineum and cervix. Admitted to Hospital this morning at one o'clock. On admission Confused, agitated and deluded. Continued restless throughout the night</i>	<i>August 4 - Spent a restless night This morning is uneasy and actively hallucinated and deluded Condition changes every few minutes: from active appreciation to apparently unconscious and semi-delirious state She starts from her bed, and goes aimlessly about as if looking for something, saying that the "Church is being burned, is then recalled to herself for a few seconds, and realizes a remark or two.</i>
Present physical condition and signs, Appearance, <i>depressed, agitated, restless</i> Strength, <i>poor</i> Nutrition, <i>poor</i> Change in weight, Appetite, <i>refused breakfast</i> Sleep, <i>Slept none through the night</i>	<i>Mouth and tongue dry</i>
Respiration, <i>regular</i> Cough, <i>no</i> Expectoration, <i>no</i>	
Chills, <i>no</i> Fever, <i>no</i> Temp., <i>97.6</i> Pulse, <i>84, feeble, tension 20 slight irregularity</i> Skin, <i>pale, dry</i> Heart, <i>no murmur; apex beat not palpated in recumbent position; in upright position detected in normal location</i> Circulation, <i>tender stigmata of chest</i> Stools, <i>passed Aug. 5, 11 A.M. 30g. Sp. gr. 1.030; acid; a trace</i> Urine, <i>Exam. 6, 8 A.M. of albumen; no sugar; a few pus cells; amorphous urates.</i> Pain, <i>decided cutaneous hyperaesthesia</i> Nausea, <i>no</i> Vomiting, <i>no</i> <i>Eyes dark. Pupils dilated.</i> <i>Tongue moist, irritabile, cracked, no coat.</i>	<i>Treatment - Electricity - Faradic current R. Mist. Styrch. Co. ʒj t.i.d. cont R. Spts. fermenti ʒij t.i.d. cont. Sig. For milk punch.</i>

ST. LAWRENCE STATE HOSPITAL, CLINICAL RECORD,

Name, Manuel Jimenez Continued Notes.

Joint will be attempted to be secured and no dressing applied.

R Hyoscin Hydrobr. gr. $\frac{1}{120}$
Vin. Dulcis f3i
Aq. Sig. T.i.d. Cont.

Nov. 4. Grows critically feeble and helpless in every way. Has had abdominal distension and vomiting of black, gritty, material something like coffee grounds, but no tumor can be detected on palpation.

Distension relieved by castor oil and turpentine stupes.

This morning requires catheterization.

Nov. 2.

Examination of blood. Haemoglobin, 90%

Red corpuscles, 4,050,000. White corpuscles, 7,000.

Stained specimen (Ehrlich) to unusual appearances; a few polynuclear neutrophils - no other leucocytes discovered.

Nov. 5. Pyrexia. Has not been seen in chill. Once or twice has had slight cough. Abdomen distended and coils of intestine prominent, especially descending colon which is tympanitic. To have turpentine Stupe. No vomiting. Becomes restless and groans, except when under influence of hyacin, which is followed by comparative comfort. Pulse of good volume - irregular. Grows more feeble.

Slight Dulness at right apex - Puerile respiration - Sibilants on both expiration and inspiration, more general during expiration. Same results of auscultation of both sides anteriorly.

Nov. 6. Died at 7:30 A.M.

Autopsy showed: Cerebral atrophy

Calcareous degeneration of aortic and mitral valves without obstruction or incompetence

Calcareous arteries, especially large pelvic vessels

Fibroid uterus. Intracapsular fracture of hip.

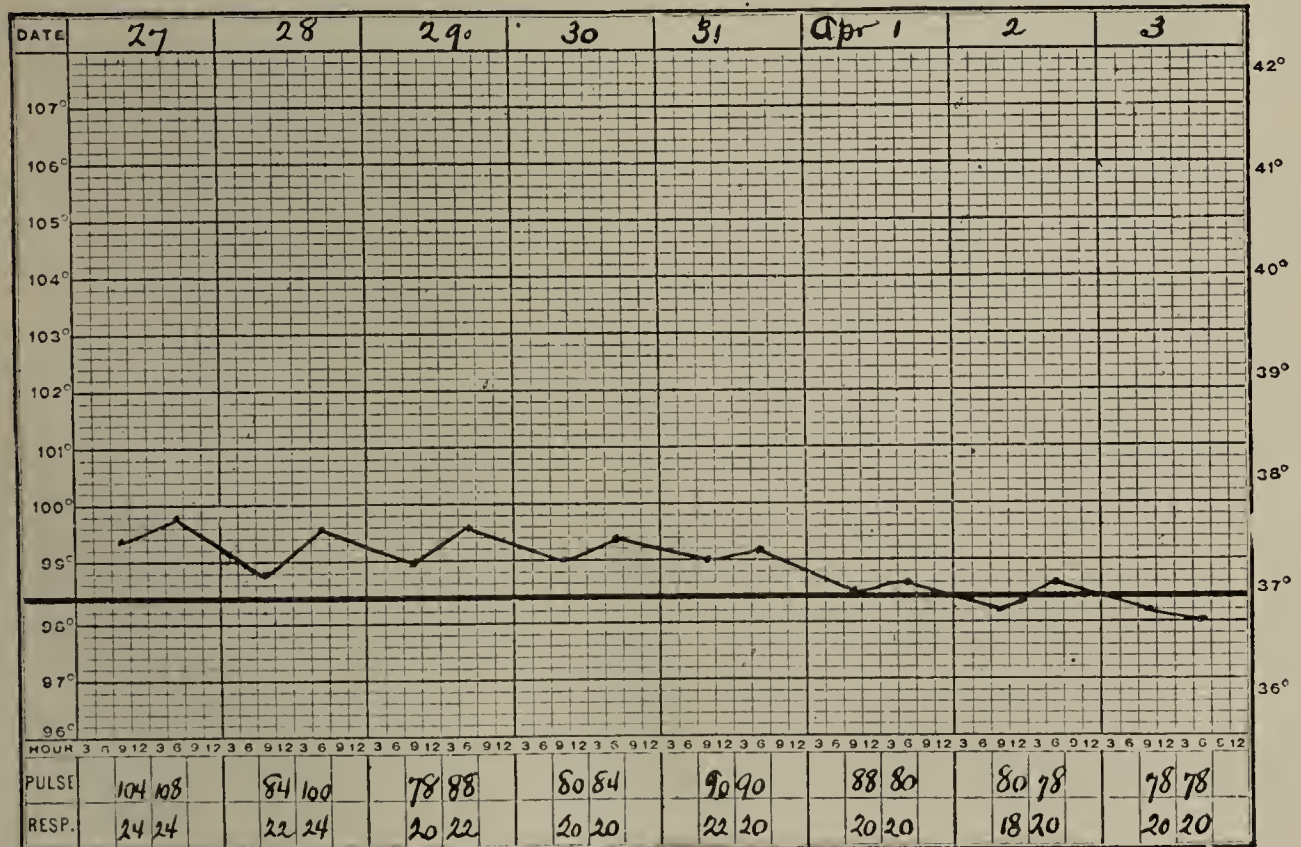
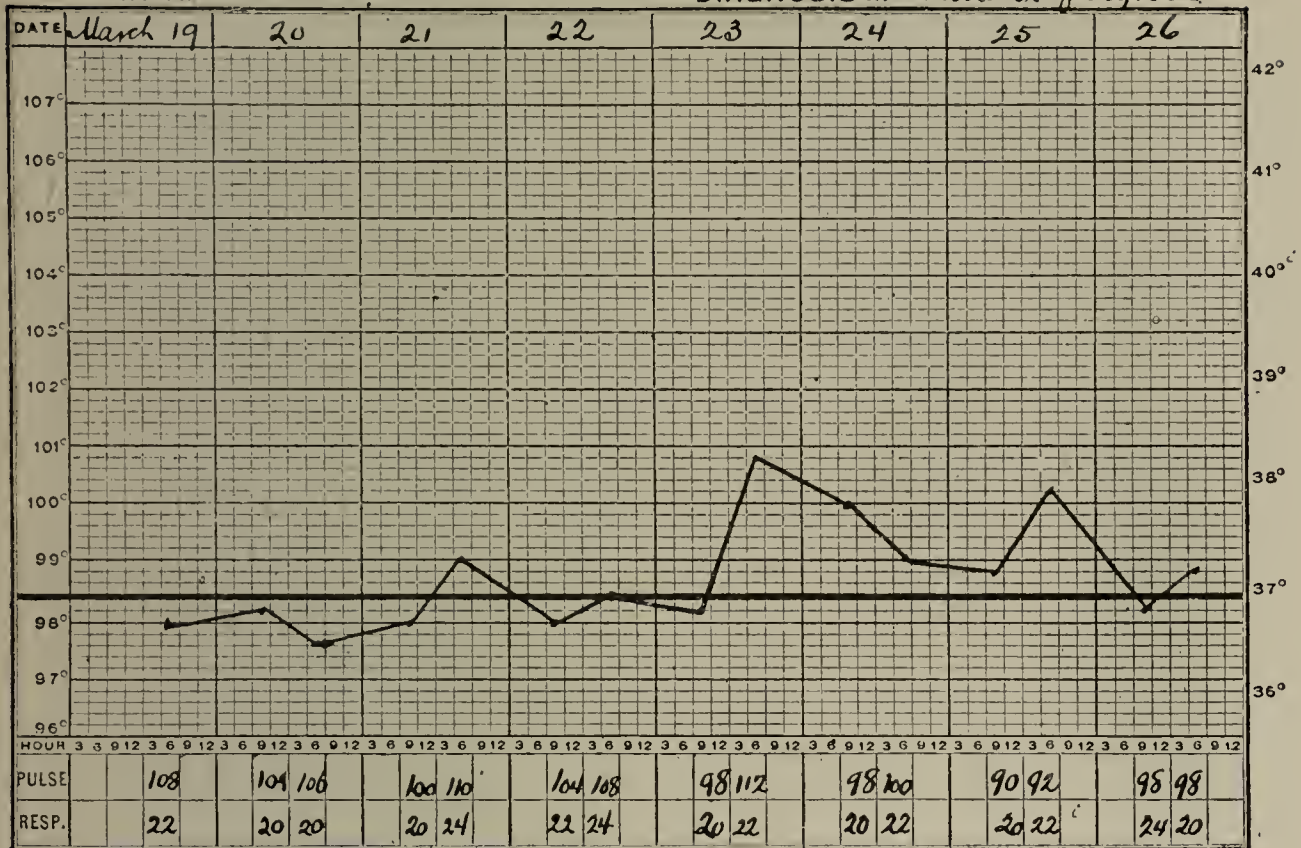
Autopsy Record, Vol. 1, p. 230.

Died - Debility of old age; valvular disease of heart.

ST. LAWRENCE STATE HOSPITAL, CLINICAL RECORD.

NAME *Jimmy / 144 / 144*

DIAGNOSIS *Recurrent mania Administration of thyroid*



ST. LAWRENCE STATE HOSPITAL, CLINICAL RECORD.

WARD NOTES.

Name, _____ Ward, A Commencing Nov 3 1894

[illegible]

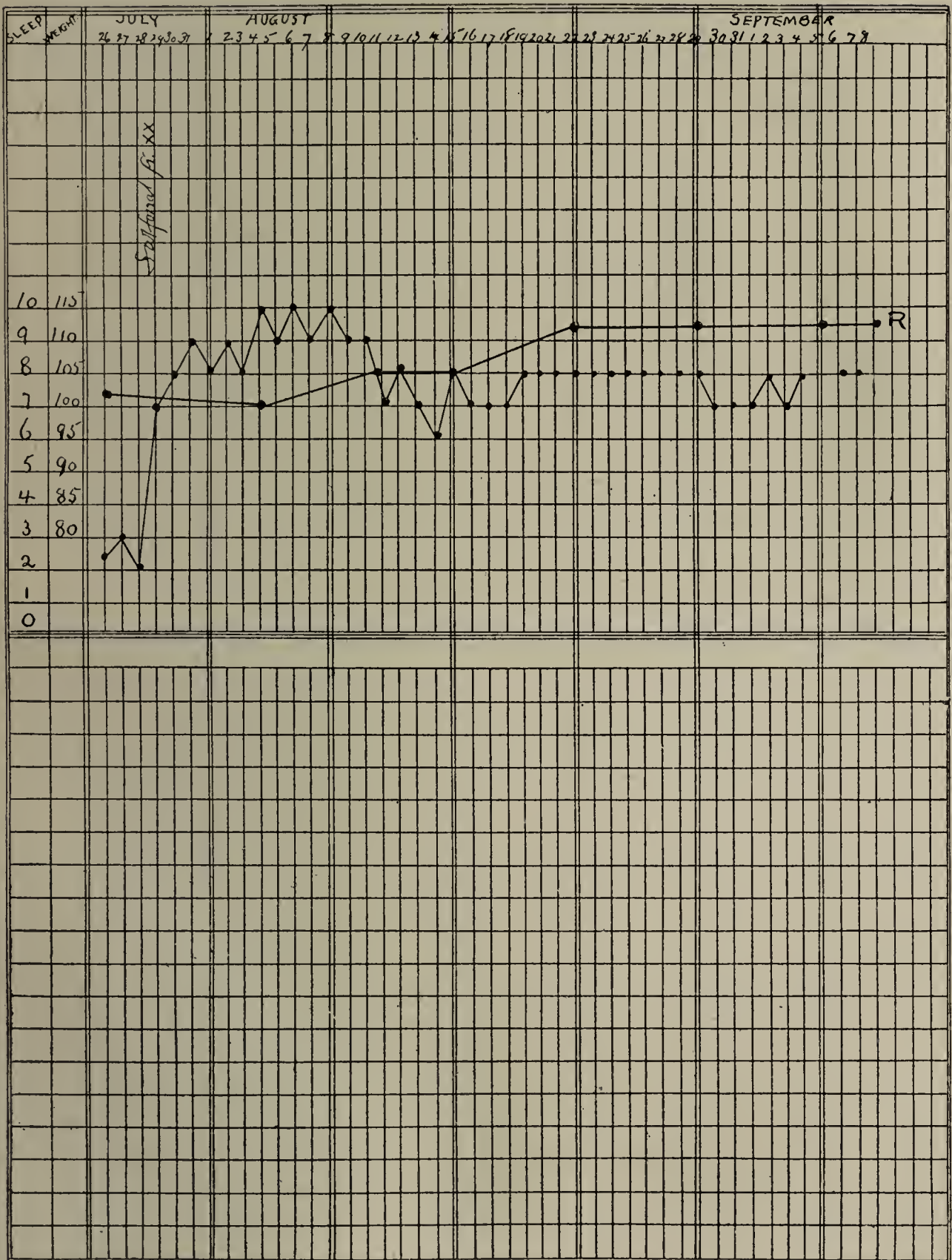
PHYSICIAN'S DIRECTIONS.

Nov 5-
 Messagr once daily
 Cascara stopped

Anne Jettley

ST. LAWRENCE STATE HOSPITAL, CLINICAL RECORD,

Name N. H. M. N. H. M. Continued Notes.



ON THE RELATIONS OF PHYSICAL DISEASE AND MENTAL DISORDER.

Cases from the Clinical Records of the St. Lawrence State Hospital.

By J. M. MOSHER, M. D., First Assistant Physician.

The applications of the principles of physical diagnosis to cases of recent insanity, and the study of the relations of insanity with so-called physical disease, result in the inevitable conclusion that the differences and distinctions between affections of the mind and body are more apparent than real, and that success in the treatment of disease of the former is attained on pure medical methods no less than in the treatment of affections of any other part of the organism. Mental disease as an entity, whether its manifestations be melancholia or mania, exhilaration or depression, disorder of the will or of the emotions, yields to the preponderating physical depravity, and remains only as a complicating group of symptoms, often, it is true, perplexing and obscure, but subordinate.

In investigating the interdependence of physical and mental disease, we are confronted at once by the variety and richness of the material, and the difficulty lies not in the search but in the selection from the abundance of illustrative cases. The doubt is at once raised whether a true physical basis of insanity is displayed or whether is evolved a science of the mental symptomatology of disease, which now contents itself with the few characteristics of the *spes phthisica*, the anguish of cardiac disorders, irritability of nephritis or depression of dyspepsia. For discussion of my thesis I submit cases from the hospital records, with consideration of the results upon the mental condition of changes in the physical health.

DISEASES OF THE NERVOUS SYSTEM.

The mental defects following gross organic lesions are well known and of obvious origin. Less pronounced are their premonitions. Temporary disorders of the special senses or of speech, transient localized

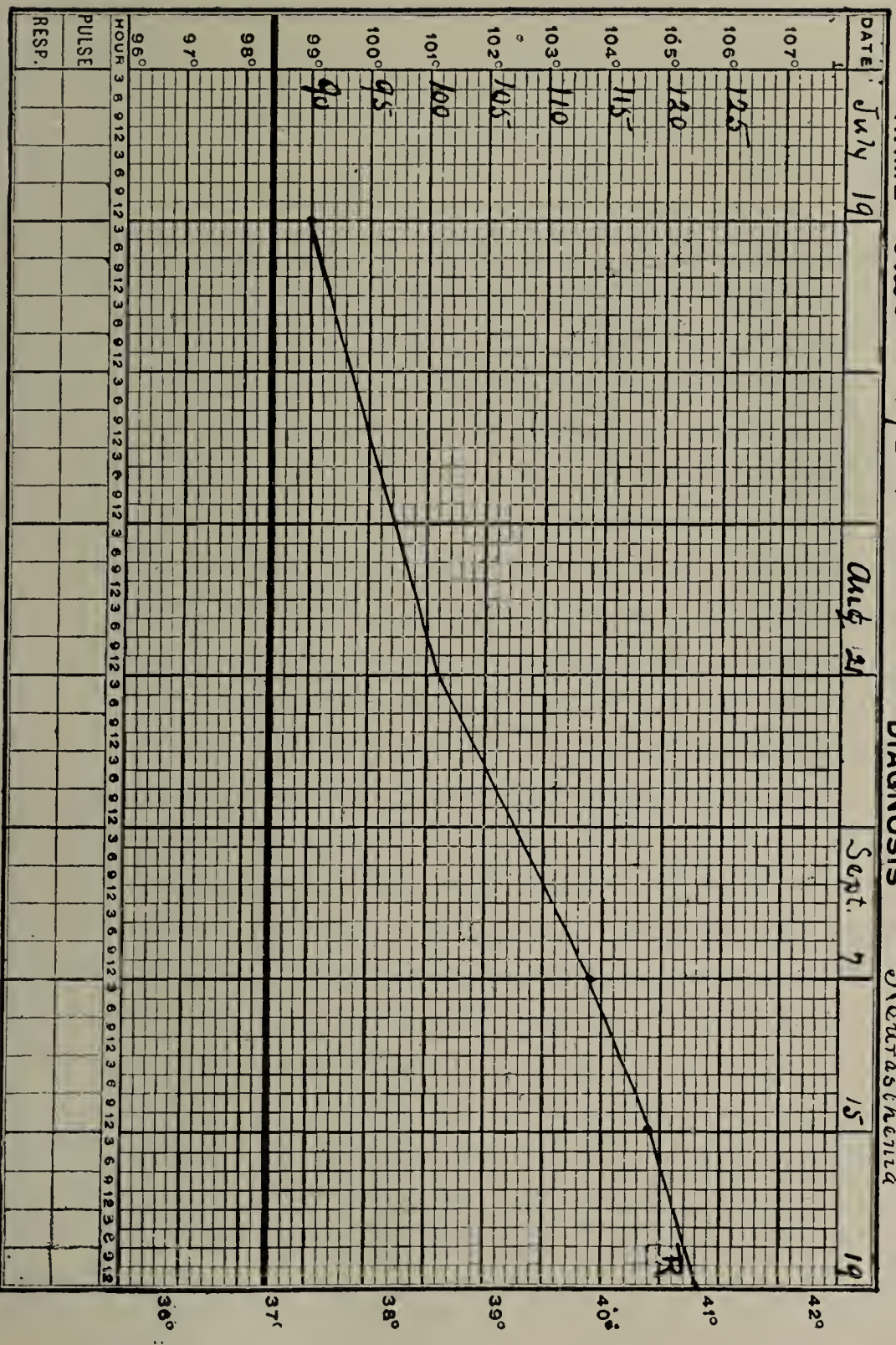
spasm or numbness, vertigo, syncope or general weakness are suggestive and threatening, but of greater import when enforced by loss of memory, irritability or other form of emotional excess, which, alone, are of no greater value than the rare and almost unexplainable presentiments in the mind itself of its own destruction. Dean Swift was one day found "gazing in a solemn state of abstraction at the top of a lofty elm, whose head had been recently blasted by a hurricane, and exclaimed, 'I shall be like that tree; I shall die at the top first.'"^{*} And Scott, with melancholy anticipation of his own fate, and with Swift's end vividly in his mind, made an entry in his journal "expressive of his fear lest the anticipated blow should not destroy life, and that he might linger on, a driveller and a show."[†]

In case No. 1054 there was sudden accession of limited and fixed delusions, referable to disturbance of general sensation, and resulting in grotesque ideas more characteristic of long developing insanity than of the turmoil and variety of the manifestations of acute mania. The patient, a woman, aged fifty-seven, married, of culture and good antecedents, was admitted to the hospital July 3, 1893. She was said to have been of nervous temperament, and to have presented symptoms of insanity for one year prior to admission, but the exciting cause was not known. During the week before admission her mental condition had developed active and destructive mania with great irritability, self-assertiveness and the use of objectionable language—all contrary to her general character. She was especially abusive and hostile to her husband, with whom her relations had been of most affectionate and pleasant nature. About one month after admission she showed exhaustion, fairly rapid in its onset, and at the same time fixed her attention upon the delusion that her legs and the legs of other people were made of straw and wood with "the skin stretched over." She persisted in this assertion, always referring to legs. Later she complained of severe pain in the knees and ankles, more especially in the right knee, which appeared slightly swollen but not reddened. She was placed in bed, and immediately developed acute bedsores upon the buttocks and upon the right heel. There were cutaneous hyperæsthesia of both legs, increased reflexes of sole and patellar tendon with pain on movement. The marked cerebral disturbance manifested by these mental and physical symptoms suggested disorder of the brain circulation of gravity approaching apoplexy, and the possibility of this result was predicted upon these grounds. On August eleventh, less than six

^{*} Lockhart: *Life of Scott*.

[†] Forbes Winslow: *Obscure Diseases of the Brain and Mind*, pp. 196, 197.

ST. LAWRENCE STATE HOSPITAL, CLINICAL RECORD.
NAME Case No. 784. WEIGHT CHART. Acute melancholia.
DIAGNOSIS Neurasthenia



weeks after her admission to the hospital, and less than two weeks after the grouping of the symptoms described above, she suffered an attack of apoplexy shortly after dinner, and died in twelve hours.

As preëminently the type of perverted nervous function neurasthenia bears direct association with insanity, of which it is a well-nigh universal complication. In chronic cases long past the initial neurasthenic stage, its impress remains in the enfeebled circulation, intestinal torpor, dilated pupils, retarded and benumbed sensations, motor debility and inactive reflexes. In the genesis of insanity, the departure from health is initiated by the train of neurasthenic symptoms, of which the earliest is the development of pathological from physiological fatigue. The sequence and relations of these manifestations have been shown by Dr. Cowles* to be, on the physical side, lack of control of nerve force, failure of coördination, and increased excitability with quick exhaustion; the earliest mental indication is weakness of the faculty of attention, alteration of the bodily feelings, producing a sense of ill-being and of effort. So far the symptoms are those of normal tire amenable to the relief afforded by usual processes of recuperation. The morbid state follows the grafting upon these symptoms of introspection, retrospection, apprehension, worry and hypochondria, irritability and restlessness, from which the change to suspicion and delusion is but a step. Treatment, often ignoring the superficial signs, is directed to the underlying pathological condition and the restoration of healthy tone.

Rest is the prime indication. When this may be best secured by withdrawal from sources of irritation, and the novelties of sight-seeing and similar mental stimulation, from the sympathetic and too-fidgety interference of well-meaning but oppressively anxious friends, isolation becomes imperative, often in the hospital. There, induced by routine manner of living, by well ordered direction of trained nurses, and by nutritious food properly adjusted in time and quantity for the digestive capacity, improvement is often rapid and permanent. The action of tonic drugs is reinforced by electricity and massage. At a proper moment in convalescence, dullness is sought to be overcome by the stimulation of carefully regulated diversion, and the physical and mental recuperation to be completed by calisthenics, drives, short walks and easy games, as croquet and tennis.

Case No. 784. Woman; age, 50; widowed; nativity, Canada; was admitted to the hospital July 19, 1892. It was stated that three years before admission she had fallen from a window, striking her face, and

* Cowles: Neurasthenia and its Mental Symptoms, The Shattock Lecture, '89'.

that she soon afterward became insane. She was treated in another hospital, improved and was discharged. Later she became excitable and almost uncontrollable. She was subject to periods of excitement, in which she expectorated profusely; she claimed that there was a discharge from the posterior nares; that her tongue "trembled at the root," and that her "jaws rattled;" that she had falling of the womb and pruritus. She had paroxysms of irritability, in which she attacked other people. When examined by physicians, she said she wanted to get married and was "flirting with the man in the moon and the barber's pole; that she had fallen and had struck her womb."

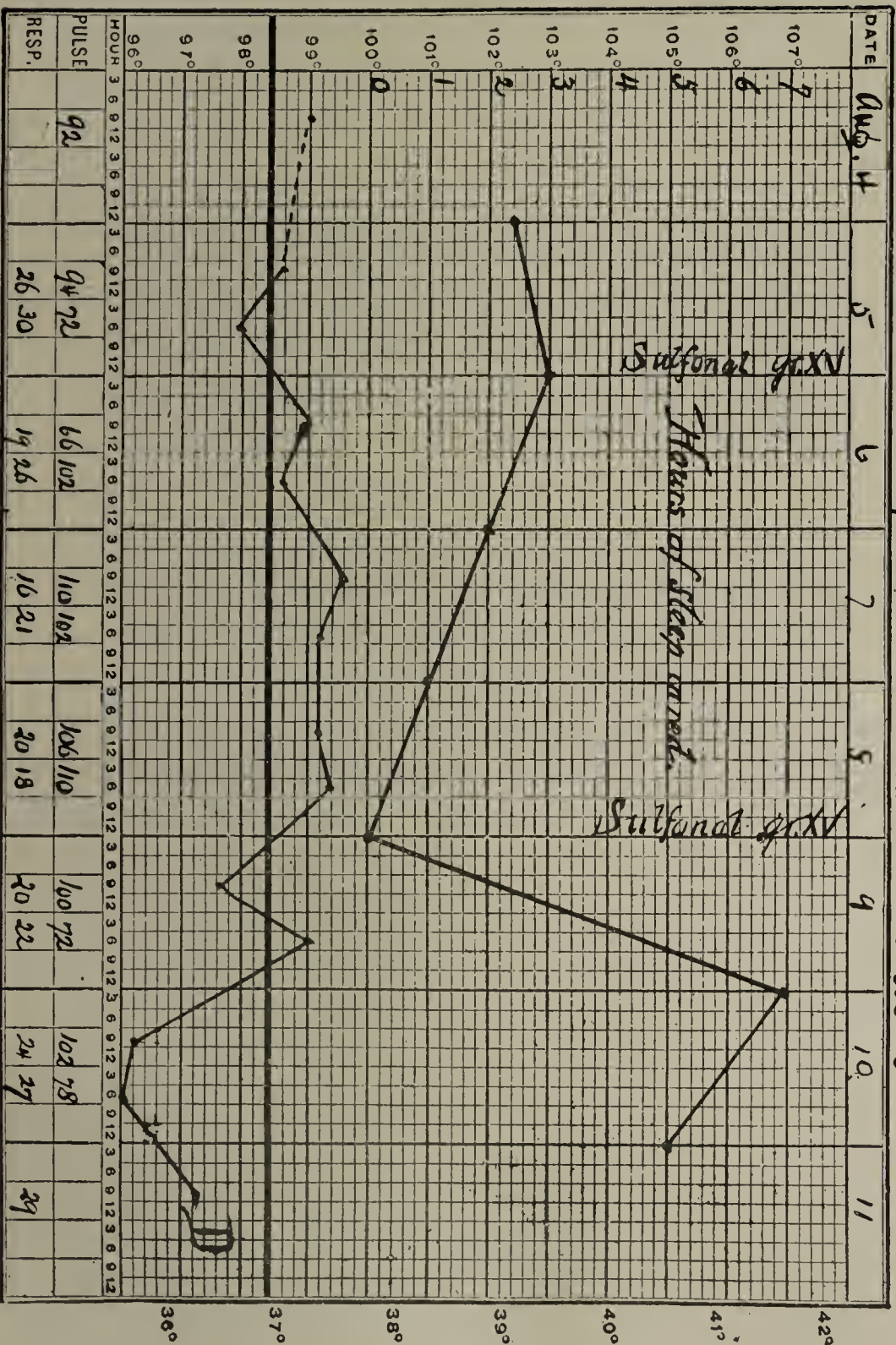
She was feeble and emaciated when admitted and weighed ninety pounds. She remained in bed after admission and improved rapidly during the first three weeks. She was fed liberally, and was given a tonic of gentian, glycerine and iron. The salivation continued, and there was also profuse sweating. She complained of pain and peculiar sensations referred to almost every part. August first she was able to sit up a few hours each day, and to leave her room. She then began to show cheerfulness, and there were no more paroxysms of scolding and delusional excitement. From that time on she improved rapidly, became bright and coherent, and on September twenty-eighth she was discharged from the hospital recovered. From her admission, on July 19, 1892, to her discharge, on September twenty-eight, she gained in weight from ninety pounds to 123, and shortly after arriving home on September twenty-nine, she wrote that her improvement had continued and she then weighed 124 pounds.

THE DIGESTIVE SYSTEM.

Disorders of digestion are not less frequent complications of insanity than of its associated neurasthenic state. Their correction is essential to successful treatment, and may be expected to exert a prominently favorable effect upon the mental disease. Stomach and intestinal dyspepsia, functional derangement of the liver, constipation and its sequelæ almost invariably attract attention during the acute stage. Cases of this class, including those arising from cholelithiasis and intestinal parasites, have furnished substantial grounds for belief in the so called sympathetic insanities, now gradually yielding to a more exact pathology which discriminates in degree only between the infantile eclampsia of intestinal irritation and the gradual and more remote reflex of faecal accumulation. Sufficient cause is found in the disturbance of the myriads of nerve filaments supplying the great expanse of the intestinal tract and the resulting depravity of nutrition from either impoverishment or contamination. Recovery from acute melancholia

ST. LAWRENCE STATE HOSPITAL, CLINICAL RECORD.

NAME Case No. 1774. DIAGNOSIS Acute delirium



following removal of faecal impaction is reported by Dr. Hutchinson,* and I have recorded a similar case in which the same operation was followed by relief of stuporous melancholia and restoration of the patient to his home and vocation. The study of this form of auto-intoxication of the individual thus throws much light upon the aetiology and complications of acute insanity. The ensuing melancholia or mania is active and severe, often with delirium and followed by rapid emaciation and critical exhaustion. Sunken eyes, dilating pupils, parched, furred tongue, sallow, harsh skin, rapid, weak and irregular pulse, sunken and doughy abdomen, anorexia, constipation, elevated temperature, acute sensibility, unconsciousness and frenzy, reveal the impoverishment of the central nervous system and the dangers of typhomania. Treatment, however prompt and energetic it may be, more often loses than wins. No sedatives with debilitating after-effects are indicated; sulfonal and trional may be cautiously administered; disinfection of the *primæ viæ*, active stimulation and enforced rest with abundance of easily-digested or predigested food, may avert the threatening dissolution.

Case No. 1774. Woman; age, 36; widowed; nativity, United States; housewife; was admitted to the hospital August 3, 1894, in a condition of acute delirium. She was said to have been insane for one month, following frequent parturition with ensuing lacerations. The medical certificate of insanity stated that she was restless and depressed, erratic in thought and conversation, had delusions which appeared to cause her much trouble; that she talked incoherently, and said she had "old stickers" in her legs; that she thought the electric cars were running under the house and she could hear the men shouting to her. Her friends stated that she studied the planets, and was constantly busy with her delusions; also that she did not sleep. At the time of her admission she was notably debilitated, emaciated and very anæmic. She expressed delusions freely, and they appeared to be based upon active disturbance of the senses. She suffered at first quickly recurring attacks of delirium with delusions of persecution and apprehension. Physical examination revealed a feeble, slightly irregular pulse, pale, dry, harsh skin, feeble impulse of heart, without murmur, decided cutaneous hyperæsthesia, dilatation of the pupils, irritable, cracked but moist tongue without coating, and urine of high specific gravity, with a trace of albumen, and with leucocytes and a deposit of amorphous urates. The day after admission the debility was profound and the delirious state continued active. A tonic of iron and strychnine was prescribed, milk punch was

* *American Journal of Insanity*, Vol. XLIII, p. 264.

ordered, and daily application of the faradaic current was directed. Two days later intractable diarrhœa began and continued, little influenced by active measures for its relief. Three days after admission digitalis was administered every three hours, and attempts were made to control delirium by the hot-pack. On the following day nitroglycerine was administered in addition to the digitalis every two hours. At the end of the first week digitalis, strophanthus, nitroglycerine, strychnine, in addition to whisky, were administered at hourly intervals in alternation, either subcutaneously or by the mouth. On August eleven, eight days after admission and five weeks after the disease was said to have begun, the patient died.

The necropsy revealed intense engorgement of the cerebral vessels, with streaks of opacity of the arachnoid membrane, cysts of the choroid plexuses, and softening of the cerebral mass. In the lateral ventricles were patches of reddish discoloration and extravasation in the line of the arborescent vessels. There were tubercular deposits and fibroid tissue in the lungs. The heart contained recent clots and small areas of extravasated blood, but no valvular lesions. The stomach was dilated and reddened, and the small intestine injected and contained an abundance of slimy mucus. The kidneys were enlarged and pale, with small adherent capsules. Microscopic examination showed cloudiness of the epithelial elements and desquamation of the tufts and tubes, but no diapedesis of blood cells, the whole presenting the appearance of "acute degeneration of the kidneys," as described by Delafield and Prudden,* and referred by them to the conditions resulting from acute poisoning or inflammation of other organs.

THE CIRCULATORY SYSTEM.

Treatment of organic disease of the heart and blood vessels is at the best only compensatory, whether the degenerated valves or non-elastic vascular tubes be affected by the various constitutional affections, rheumatism, gout, nephritis, alcoholism and syphilis, idiopathic arterial sclerosis or by the more tardy calcification of advanced age. In frequency of occurrence and the importance of its results general arterial sclerosis, or arterio-capillary fibrosis assumes a prominent place, Dr. Wise† having recorded ten cases in the admissions of two years to the St. Lawrence State Hospital. The small firm pulse with unyielding vessel wall, the forcible and displaced impulse of the hypertrophied heart and the mental and physical aspect of "premature senility," not

* Delafield and Prudden: A Handbook of Pathological Anatomy and Histology, 3d edition, page 403.

† Bodily Disease and Senility; A Contribution to the Discussion on the Causation of Insanity, p. 6. Transactions of the New York State Medical Association, 1892.

rarely escape observation. At the necropsy the vessels yield less readily to the knife, and from the cut surfaces of the kidneys, liver and brain, the elongated and twisted tubes protrude from gaping perivascular canals.

Similarly emphatic are the effects upon the brain of the fluctuations in the blood current from valvular disease of the heart. Between insanity and the anxious facial expression, sense of impending danger, syncope and vertigo, attending cardiac lesions, the distinctions merely involve questions of diathesis; while upon the mental images of the insane the complicating heart disease throws its shadows and even determines the character of the delusions. Dr. Mickle's* analysis shows mitral regurgitation to be most frequently accompanied by depression with delusions of persecution and suspicion; mitral stenosis with impulsive excitement and discontent, delusions of ill usage and of poisoned food; aortic regurgitation with loquacity and delusions of exaltation and of internal sensations, such as magnetic influences; and aortic stenosis (often associated with general paralysis) with impulsive violence and delusions of persecution and poisoning. In the following case, of which sphygmographic tracings are shown, temporary benefit followed tonic and stimulating treatment of the heart by the use of wine and digitalis.

Case No. 919. Woman ; admitted to the hospital January 6, 1893 ; age, 71 ; widowed ; nativity, New York ; housekeeper. Patient was brought from a county almshouse and at the time of admission expressed ill-defined delusions of persecution, stating that her associates in the almshouse had accused her of following the men out of doors, and that they "twitted and plagued" her ; weeps and shows great depression when conversing. The medical certificate of insanity stated: "Said that she hears voices during the night charging her with being intimate with men ; that she is now carrying a child by some man ; that she is annoyed by a certain woman kicking her bedstead during the night ; that she is accused of going out nights with men ; that certain persons attempt to poison her ; talked constantly, protesting her innocence ; was in constant motion with her head and hands ; cried and swore. Appearance and manner that of an excited, nervous, irresponsible person. Has grown thin and haggard during the past three months, and her delusions more fixed. She left the dinner table and went out to vomit poison that had been concealed in her food ; wrings her hands ; cries and talks of her imagined troubles while at her work."

*The Goulstonian Lectures on Insan'ty in Relation to Cardiac and Aortic Disease and Phthisis; The British Medical Journal, March, 1888.

Physical examination on admission revealed the cardiac impulse in the nipple line, and feeble first sound, greatest intensity of second sounds in third costal interspace and irregularity of beat. During her residence in the hospital patient has been subject to paroxysms of excitement characterized by activity, during which she walks anxiously up and down the ward, wringing her hands, weeping and complaining that she is being poisoned and otherwise injured, and apparently entirely overcome by her fears. On February 14, 1894, physical examination revealed displacement of the apex beat to the nipple line and a blowing systolic murmur entirely replacing the first sound of the heart with maximum intensity at the apex and area of convection from a point midway between the pulmonary interspace and the apex to the ensiform cartilage and laterally as far as the anterior axillary fold. With the use of a prescription containing tincture of digitalis, tincture of the chloride of iron and whisky, the patient was rendered more comfortable and there was less severity in the mental manifestations with more frequent remissions. With discontinuance of the drugs there was marked change in the character of the pulse and more pronounced mental agitation and excitement.

DISEASES OF THE GENITO-URINARY SYSTEM.

That there should be great divergence of opinion upon the relations of kidney and mental disease follows naturally upon hospital neglect of systematic urinalysis and indifference to mental manifestations on the part of the practitioner. Osler's* recent work is almost alone in assigning to insanity a prominent place among the cerebral symptoms of uræmia, the patient commonly being "noisy, talkative, restless and sleepless." That somnolence, stupor, vertigo, headache, spasm, convulsions, coma and delirium might and do arise from the same causes as mania and melancholia is not inconsistent with our knowledge of the relations and functions of the brain. I recall four conspicuous cases of uræmic insanity, of which two resulted in death, one in chronic insanity, and one in restoration to mental health.

Case No. 1688. Admitted to the hospital May 18, 1894; age, 65; widowed; nativity, United States; fisherman; temperate; assigned cause of insanity, rheumatism and nephritis. At the time of admission patient was feeble and pulse was 96, feeble and of high tension; temperature, 99°.2; tongue dry and with brown coating; pupils contracted; urine contained albumen, uric acid and hyaline and granular casts; the heart was hypertrophied and the beat forcible and labored. This was his

* The Principles and Practice of Medicine, p. 738.

first attack of insanity and was said to have existed for one month. Patient's attending physician stated: "He has had rheumatism for twenty-five years; the last attack was in July last and he was confined to his bed for four or five months. When I first saw him, about May first, he lay in a comatose condition which continued for four days. He now takes milk, voids his urine involuntarily and also his bowels. He will be in constant motion for hours at a time, then again there will be a sort of cataleptoid condition. Will hold a cup or a pillow in a certain position for hours at a time. Sometimes it requires two or three persons to restrain him and keep him in bed."

Medical certificate of insanity stated: "Said nothing intelligible. Lies in bed most of the time picking at the bed clothes or pillow; at times gets out of bed and tries to go out of doors. He is thus busily engaged for hours at a time, and then will fall asleep from exhaustion. Emaciated, eyes sunken and have a vacant stare. The brother states that for several weeks before this attack his actions were peculiar, and at times would appear more or less dazed and talked incoherently." On admission patient was emaciated and appeared feeble. When addressed muttered unintelligibly. Confused, dazed and looked anxiously about.

The patient was given a liberal amount of liquid diet and the bowels were kept open by the use of frequent doses of Epsom salt. Diuretic and tonic drugs were ordered. He improved steadily, and on August 7, 1894, three weeks after admission, he was discharged from the hospital mentally recovered, taking with him a caution upon the dangers of his Bright's disease and the possibilities of recurrence of his uræmic state.

CASE No. 1688 — URINALYSIS.

DATE.	Reaction.	Specific gravity.	Albumen.	Sugar.	Microscopical Appearances.
1894. May 21...	Acid .	1028	Yes ..	No ..	Uric acid; casts hyaline and granular.
May 26...	Acid .	1020	Yes ..	No ..	Uric acid; casts hyaline and granular.
June 6...	Acid .	1010	No ...	No ..	Blood; amorphous urates; epithelium.
July 4...	Acid .	1012	Yes ..	No ..	Uric acid; casts hyaline and granular.
July 11...	Acid .	1020	Yes ..	No ..	Casts.
Aug. 1...	Acid .	1015	Yes ..	No ..	Casts and blood.

Case No. 453. Man; age, 36; single; native of United States; jeweler. Admitted to hospital January 14, 1892. Patient's history revealed "queer actions" from childhood and the prevalence for years of epileptic fits. The attack of insanity was said to have existed for about four weeks, and to have been characterized by extreme violence and excitement. The medical certificate of insanity stated that he "screeched, howled, stamped on the floor, sang, and kept up a constant chatter, broke furniture, tore his clothes and bedding, and his people were obliged to keep him constantly under lock and key when he became excited." At the time of admission the patient was badly bruised and scarred. He was stupid and quiet, but became excited in a few hours.

At about 2 o'clock during the second night of his presence in the hospital a noise was heard in his room by the night attendant. The latter entered at once and found the patient lying on the floor and pulseless. His physician's efforts at stimulation by hypodermatic use of digitalin, strychnine and whisky were unavailing and at 3:20, A. M., he died.

The necropsy, held the same day, at 11:20 o'clock, A. M., revealed considerable diffuse thickening and opacity of the pia, with sclerosis and prominence of the smaller cerebral arteries. The left ventricle of the heart was hypertrophied, and one segment of the mitral valve was slightly thickened. The kidneys were small, their capsules adherent, cortex attenuated and markings indistinct. A small quantity of urine remained in the bladder from which was thrown down a thick cloud of albumen. Minor and unimportant lesions were present in the other viscera.

THE RESPIRATORY SYSTEM.

The revolution of opinion as to the communicability of tuberculosis is not without marked effect upon present understanding of the relations between insanity and this fatal complication, which holds so prominent a place in the mortality tables of hospitals for the insane.* That the debilities of insanity furnish suitable opportunity for the propagation of the tubercle bacillus is consistent with the theories of its life-history; that something more is required is strongly suggested by the experience at the St. Lawrence Hospital. Besides the subsidence and cure of tuberculosis in a few instances present upon admis-

* In the New York State hospitals during the fiscal year 1892, of a total of 682 deaths, seventy-nine were attributed to phthisis pulmonalis, four to general tuberculosis, and twenty to pulmonary tuberculosis; while of other causes exhaustion from the various forms of mental disease stands first, with 126 cases, followed by general paralysis of the insane, with sixty-eight cases — *Report of the New York State Commission in Lunacy for 1892*, pp 272 et seq.

sion to the hospital, the mortality rate has been surprisingly low. Since the opening of the institution in December, 1890, to the present time (September 1, 1894) there have been 228 deaths. Of these the cause of death in nineteen cases was assigned directly to tuberculosis, and in seventeen additional cases, in which death was due to other causes and in which autopsies were made, tubercular lesions, for the greater part latent and subordinate, were discovered. During the fiscal year ending September 30, 1893, there were seventy-five deaths, of which seven were due to some form of tuberculosis. Of fourteen deaths occurring at the Clinton State Prison, at Dannemora, N. Y., during the same period, ten were due to tuberculosis. With almost entire exemption from other causes in the latter institution, there has been no decrease in the mortality from this disease.*

The climatic conditions of the two institutions are not dissimilar. Both lie upon the border of one of the great health resorts, for consumptives of America. The hospital is new and in its construction, hygienic and sanitary principles had careful and perhaps elaborate consideration. It receives inmates from whom absence of physical debility of one form or another is the exception. At Dannemora no insane people are retained.

In the light of these facts the question of the relations of insanity and tuberculosis resolves itself into a consideration of the predisposition to the two diseases. In seeking their cause we are attracted by the theory of the functions of the nervous system advanced by Dr. Mandley:† “Perhaps I might set it down as a true generalization that the morbid neurosis, when it is active and gets distinct morbid expression, may manifest itself in four ways — (a) in disorder of sensation — for example, paroxysmal neuralgia; (b) in disorder of motion — for example, epilepsy; (c) in disorder of thought, feeling and will — mental derangement; (d) in disorder of nutrition — whereof diabetes is the earlier and

* Dr. J. B. Ransom: “*Tuberculosis in Prisons*,” read at the Congress of National Prisons Associations, held at St. Paul, June, 1894: “A year prior to my taking charge of the medical department of Clinton prison, the mortality rate of that institution was upon the daily average three and forty-one one-hundredths per cent., from all causes, while for the year closing September 30, 1893, it was eighty-seven one-hundredths per cent., showing a marked decrease. At the same time there was an increased mortality from tubercular disease, and, in spite of all efforts that have been put forth and which have proved so efficient in lowering the death-rate from all other diseases, have completely failed to proportionally lessen the advance of tubercular disease. The mortality from this disease was numerically small, but as a percentage large. An examination of prison mortality statistics of this State, computed upon my estimate, would show that the percentage of deaths from tubercular disease prior to 1880 was less than forty per cent., while since that time it has steadily increased until 1890, when it reached a percentage of over eighty.”

† Pathology of Mind, p. 113.

phthisis is the latter stage." And in Dr. Blandford's* classic treatise on insanity is written: "I have found, however, that phthisis and insanity do frequently coexist in the same family, but that some members will be afflicted with insanity, while others suffer from phthisis, and that this is the rule rather than that both disorders coexist in greater or less degree in all the members of the family."

To this Dr. Starns† adds the weight of his experience: "We often see that a consumptive patient has a child, which instead of developing consumption develops insanity, and *vice versa*, an insane person may have children of a phthisical tendency."

Case No. 1151, a girl 16 years of age, was admitted to the hospital September 25, 1893. She was said to have been insane eight years, and her attacks had been of an epileptiform nature, characterized by sudden outbreaks of violence and probably associated with unconsciousness, either partial or complete. Heredity was the assigned cause; eight paternal great uncles and great-aunts had died of phthisis and her paternal grandfather was epileptic in youth, and neurotic. During her residence in the hospital — which was for little more than six months — she had an attack of intractable bronchitis and laryngitis with marked laryngeal congestion and aphonia, and also a sub-acute inflammation of the sheath of one of the flexor tendons of the palm of the hand.

To Dr. Clouston's‡ analysis of the mental symptoms of phthisical insanity, little has been added: "Looked at solely from the point of view of the mental symptoms present, some of the cases would be called mania of the mildly delusional, slightly demented type; more of them would be called melancholia, also of the mildly delusional type; and many of them would be called monomania of suspicion. It is a very striking fact in regard to the last that nearly all pure cases of monomania of suspicion sooner or later die of phthisis."

Case No. 1189, a young lady 19 years of age, admitted to the hospital November 12, 1893. Patient was feeble and exhausted and was easily confused when attempting to answer questions or to discuss her condition. Physical examination revealed consolidation of the right apex, a cavity in the left apex and an open sinus from the sternum. The causes of her disease was said to be tuberculosis. Patient remained fairly quiet until about three weeks after admission, when she became restless, apprehensive, and suspicious. She wept a

* *Insanity and its Treatment*, p. 56.

† Discussion on "Relation of Tuberculosis to Insanity."— *American Journal of Insanity*, July 1888, Vol. XLV, p. 87.

‡ *Clinical Lectures on Mental Diseases*, p., 328 *et seq.*

great deal, argued and disputed about trifles and was incoherent and at times unintelligible in conversation. She removed the dressings from her wound. Her respirations were accelerated and at times there was increase in temperature. She complained about her treatment and resisted the care of her nurses, speaking indefinitely of her fear that she was being injured; that her trinkets and clothing were stolen from her, and she manifested the greatest degree of apprehension. A month later she became more quiet and settled, but she spent the greater part of her time in bed. Her excitement subsided and there were no indications of cough or further active process in the lungs.

CONSTITUTIONAL DISEASES.

In his discussion of diabetic insanity Dr. Clouston* naively remarks: "The psychology of most bodily diseases is yet to be written, and one has a faint hope that the clinical study of mental diseases by students of medicine may so familiarize their minds with mental symptoms that they will be more on the alert to look for them in their ordinary practice than they would otherwise have been. When they are looked for by those who know how to observe and name them, they will be found. The whole history of medicine is one long tale of finding things when they are looked for."

Case No. 1007. The patient, a married woman, aged 56, a native of Canada, was admitted to the hospital May 11, 1893. No history accompanied her. The medical certificate stated that she had been violent, dangerous, destructive, excited, and homicidal during paroxysms; she had said that her neighbors were all her enemies, that she was continually the object of their persecutions, and that she had lost all her property; that people surrounded her house at night, peering into her windows and otherwise annoying her. Physical examination revealed fair strength. No marked objective symptoms. Glycosuria was determined and the patient was placed upon anti-diabetic diet. She improved rapidly under this course of treatment, and in four months was discharged from the hospital, recovered from her insanity.

*Clinical Lectures on Mental Diseases, p. 412.

CASE No. 1007 — EXAMINATION OF URINE.

DATE.	Quantity in twenty-four hours.	Specific gravity.	Reaction.	Albumen.	Sugar.	Remarks.
June 10.....	?	1048	Acid ..	No.....	Yes	Microscope revealed nothing abnormal.
11.....	fl. oz. 36	1048	Acid ..	No.....	8 $\frac{1}{3}$ per cent.	1440 grains of sugar.
12.....	30	1048	Acid ..	No.....	6 $\frac{2}{3}$	960 grains. Microscope shows large numbe of small, white globes in clusters — calcium carbonate.
13.....	48	1043	Acid ..	No.....	6 $\frac{2}{3}$	1536 grains.
14.....	30	1048	Acid ..	No.....	8 $\frac{1}{3}$	1200 grains. Anti-diabetic diet ordered
17.....	42	1028	Acid ..	No.....	3 $\frac{1}{8}$	630 grains.
20.....	30	1025	Acid ..	No.....	Yes	
22.....	c. c. 1440	1025	Acid ..	No.....	Yes	
23.....	850	1021	Acid ..	No.....	gm. 7.3276	
24.....	1000	1021	Acid ..	No.....	6.25	Microscope shows urates and uric acid crystals.
25.....	950	1019	Acid ..	.....	Yes	
30.....	680	1021	Acid ..	No.....	6.8	High color and strong odor. Large amount of urates, uric acid and calcium oxalate.
July 2.....	1200	1022	.....	.....	.....
4.....	680	1031	Acid ..	No.....	21.5	Heavy cloud due to urates and mucus. Patient ate bread; exacerbation of delusions and excitement.
10.....	900	1017	Acid ..	No.....	0.0083	Urea, 331 $\frac{1}{2}$ grains.
13.....	1150	1016	Acid ..	No.....	.005	Urea, 410 grains.
18.....	950	1018	Acid ..	No.....	Trace.....	
24.....	650	1018	Acid ..	No.....	Trace (?)..	Urea, 220 grains.

Case No. 590. The patient, a married woman, aged 33, a native of Canada, was first admitted to the hospital March 7, 1892, and was said to have been insane for ten weeks, the attack having followed epidemic influenza. She was debilitated and melancholy, but improved rapidly under tonic treatment, and upon May thirtieth appeared entirely rational and bright, and was discharged from the hospital.

Upon July 11, 1892, she was readmitted to the hospital. Her husband stated that she became excited at the time of her previous discharge from the hospital while on her way to the train, and that she had been threatening and violent during her residence at home. She expressed freely indefinite ideas of persecution, saying that her neighbors came into her house and seized knives, and she acknowledged that she had been frightened by them and incited to commit acts of violence. As her husband turned to leave the building, a circumscribed area of baldness was seen under his thick hair, and upon the suggestion afforded by this the wife was placed upon treatment of potassic iodide and bichloride of mercury. She improved steadily, gained rapidly in weight, and in the following February was discharged recovered. She has since remained at home.

[Assembly, No. 8.]

17 .

REPORT OF THE TRAINING SCHOOL FOR NURSES.

BY THE MEDICAL SUPERINTENDENT.

The class of 1894 was reduced to graduate five persons — four women and one man. The class of 1895 enters its senior year with nineteen students — sixteen women and three men — in excellent standing. The class of 1896 entered with thirty women and thirteen men.

The new class is large, but does not represent all the applicants, a number of whom were rejected upon the preliminary examination, and others were not accepted on account of the large size of the class. The present number will probably be reduced at the midwinter examination. We have now reached that period in our growth where expounding the advantages of a trained education for nursing is not required to attract applicants. From present indications there will be no difficulty henceforth in keeping the classes sufficiently large. With the teaching force engaged, as they are, in other departments of the hospital, and the nurses in training occupied in the regular organization, the personal element is lost in a large class.

There is a routine of service upon the sick wards for students of the training school. As a rule, the more arduous as well as the more particular duties of nursing are given them. Their records are subjected to the criticism of their teachers, and their record in practical ward work becomes part of their school standing.

A few of the graduates have successfully engaged in general nursing in the community. The advantage of trained nurses in general diseases has not appealed, thus far, with the same force to practitioners in the agricultural as in the urban communities. There seems to be a growing demand in the former, which, by the stimulation of examples sent from this school to their homes in northern New York, may increase. Several of our graduates have gone into general hospitals, and the training of the special qualifications which has been demanded by their work here will unquestionably prove advantageous to them.

The experience of training schools in insane hospitals, with reference to the employment of nurses graduating from general hospital schools, seems to be unsuccessful. On the other hand, persons transferred

from insane hospitals to general hospital training schools, having the advantage of a discipline that emphasizes patience and a uniform demeanor under the most irritating circumstances, are provided in advance with the *sine qua non* of successful nursing.

The curriculum for the first or junior year embraces anatomy, physiology, hygiene, elements of chemistry, dietage, dosage, and elementary nursing; for the second or senior year, physiology of the nervous system, principles and practice of nursing, massage, medical bathing, food preparation for the sick, bandaging, antisepsis and surgical nursing, monthly nursing, insanity and neurasthenia.

The instruction is by weekly lectures, weekly, and for a portion of the senior year, semi-weekly recitations, clinical instruction and exercises in recording and food preparation. The standard of the pupil is obtained by semi-annual written examination, marking upon note taking, recording, punctuality and conduct. If the student finally passes the general examination at the end of two years, and has a satisfactory record in other respects, a certificate or diploma is presented by the authority of the board of managers, certifying thereto.

The text-books used during the course are: Hutchinson's Physiology, Week's Text-Book of Nursing; Domville's Manual for Hospital Nurses; Bell's Notes on Surgery, for Nurses; Dulles' Accidents and Emergencies; Cullingworth's Manual for Monthly Nurses; Cantlie's Accidental Injuries; Hand-Book of the British Medico-Psychological Association; Granger's How to Care for the Insane; and syllabi issued by the Hospital.

OBSERVATIONS ON THE DOUCHE BATH, WITH CASES.

By RICHARD H. HUTCHINGS, M. D., Assistant Physician.

There has been a growing tendency in recent years in public institutions to replace the system of tub bathing by the rain or spray bath—methods by which the water is brought into contact with the skin in larger or smaller drops ; or by the douche in which the water is projected in a continuous stream under a pressure of more than two atmospheres. The advocates of the newer system claim that it is more hygienic, requires less space, economizes the time spent in filling and emptying the tubs and obviates the dangers attending the use of tubs by epileptic and suicidal patients. In institutions whose inmates are drawn from all sorts and conditions of life constant watchfulness is necessary to prevent the spread of contagious disease by new arrivals, and no more fertile avenue exists than through bath tubs improperly cared for. From any bath tub after prolonged use there can usually be gathered from the overflow and waste pipes a mass of filth consisting of hair, epithelium, thread and bits of sponge—a nidus well suited for the multiplication of bacteria.

Apparatus for spray and douche baths has been erected in seven bathrooms in the various departments of the St. Lawrence State Hospital, connected with the general water supply, and it has been observed that this method of bathing has grown in favor with nurses and patients—not at a single bound, but with a steady and progressive growth born of experience in the use of both methods. There are many of the older people who cling to the tub and would not believe themselves clean unless they had sat for fifteen minutes immersed in hot water to the chest ; but with the majority it is popular and undoubtedly it is here to stay. The actual time required to bathe a given number of patients has been reduced nearly one-half, the difference representing the time required to fill, empty and wash the tubs.

The apparatus in use here is exceedingly simple and home made, comprising only two parallel vertical pipes for hot and cold water end-

ing in a mixing pipe, the whole controlled by three valves at a convenient height for the operator. To the mixing pipe is attached a stout rubber tube, three-quarter inch in diameter and six feet in length, made to withstand a pressure of eighty pounds and ending in a capacious rose or spray. The tiled floor of the bathroom slopes to the center where a drain receives the water. By varying the temperature and form of the stream a variety of baths may be administered which can be made of real service in the treatment of chronic forms of disease where other methods of treatment have been unavailing. The cold douche, as is well known, is a powerful factor when properly administered, in regulating the respiration, circulation and tissue change. From observations made at Clinton Prison in addition to the experience here it has been fairly established that two elements of the douche bath make it a remedial agent peculiarly adapted to certain conditions of enfeeblement frequently characteristic of terminal forms of insanity, viz., temperature and mechanical impact.

At the suggestion of the medical superintendent I recorded observation of the effects of the cold douche in a series of cases having reference especially to the circulation and body weight. For this purpose twenty chronic cases were selected below the average in physical condition who had not improved or essentially changed during the six months previous. They were chosen from among four hundred as the class most likely to be benefited by such a course of treatment and were therefore young, free from organic disease, two cases of epilepsy excepted, and of sluggish temperament. They were recruited largely from the most demented and untidy class.

After being gradually accustomed to the bath it was administered daily for a period of ten weeks, with the exception of an interruption of a week, which was unavoidable. A coarse spray was employed of about twenty streams issuing from a rose under a pressure of three atmospheres, and the time of exposure did not exceed a minute and a half. The following is the method which was employed: The patient was undressed in the clothing room adjoining the bathroom, and while awaiting his turn kept a blanket folded around him; on entering the bathroom the blanket was laid aside and he took position with his back to the operator, and the stream under full pressure, and kept as near as possible at a temperature of 60° F., was directed to his feet and legs, while two attendants who knelt beside him rubbed the skin briskly with bare hands until a pinkish appearance indicated beginning reaction. In this manner the stream was passed slowly up the back to the neck, the attendant's hands meanwhile following the impact of the

water. The back completed, the patient faced about and the process was repeated, beginning at the feet as before; he was then quickly dried and rubbed with towels until the whole surface was aglow; the blanket was placed around him; he returned to the clothing room, was dressed and taken out for a short walk in the open air. It was interesting to note that some of the most demented soon learned that the feeling of well-being came with the reaction, which was hastened by friction, and rubbed themselves. Following is a brief account of the cases with changes noted in each:

Case No. 1556. Male; age, 27; dementia following melancholia; duration, six years; assigned cause, masturbation. This man is extremely demented and stupid; he removes and destroys his clothing in the day room if not prevented, and is obliged to wear a strong union suit; poorly nourished and feeble and requires infirmary care; too stupid to amuse himself or be employed. During the course of baths he improved rapidly and gained in weight from 145 to 160 pounds; his normal chest girth increased from $32\frac{1}{2}$ to 35 inches, while his pulse, formerly 94 per minute, fell to 82. There was a corresponding improvement in his habits; he no longer destroys his clothing and wears an ordinary suit; he is employed daily with the grading party, and attends properly to his wants. His mental condition has changed from stupor to silly, childish dementia.

Case No. 640. Male; age, 23; primary dementia; duration, three and one-half years; assigned cause, injury to head. He is dull and inactive; stands for a long time in one attitude; circulation is poor; hands are blue and cold, light pressure makes a white blotch, which disappears slowly; memory is poor and mental processes delayed; stupid; is willing to be employed, but requires constant direction to perform the simplest service. Improvement was observed in this case also; he gained in weight from 139 to 145 pounds; his normal chest girth increased from $35\frac{1}{2}$ to $35\frac{3}{4}$ inches; the pulse changed from 84 to 76 per minute, while his strength, measured by the dynamometer, increased for the right hand twenty-two pounds and for the left sixteen pounds. His circulation is better, and he is more active, and he is employed at policing the grounds with an attendant, work he was not capable of doing before.

Case No. 1526. Female; age, 35; dementia following mania; duration, six years; alleged cause, uterine disease. This patient was stupid and untidy; she destroyed clothing and bedding mechanically; wakeful and noisy at night; sallow, poorly nourished; circulation feeble; tachycardia; easily alarmed and resists care. There was no marked

change in her mental condition; the nurses think she is a little brighter and understands better. Her habits have improved, she sleeps better, and is not nearly as destructive as formerly, though if awake during the night she will still pick at the blanket. Physically there was decided improvement; her weight increased from 114 to 120 pounds; her normal chest girth increased from 33 to 33½ inches, while the pulse, formerly running over a hundred, fell to about 76, and became fairly uniform.

Case No. 1402. Male; age, 31; paranoia; duration, four years; no cause alleged. This was one of the most interesting cases from the effect produced in his mental peculiarities. Indolence was his chief characteristic; it was his habit to sit idly on the ward, with his feet elevated on some convenient object, perfectly listless and unconcerned. If requested to go for a walk or employ himself, he would shrug his shoulders and reply that he was sick. His appetite was capricious and perverted; if permitted, he would live on bread, which he ate with salt; when urged to eat other food, he asked for the most unusual articles — his eggs must be served raw and be brought in the bare hand, or he would not touch them; his food must be arranged in a certain way with reference to the plate and table, or he would refuse the meal. Active delusions of poisoning were constantly present. He was pretty well nourished, but flabby and anæmic. Soon after beginning the baths his appetite improved, he became more active, occupied himself about the ward, and finally began to work in the kitchen, where his industry excited the wonder of his acquaintances. He adhered to his old delusions, but attached less importance to them, for he ate heartily of whatever food was served, except meat, without regard to its arrangement. His general appearance was improved; he gained in weight from 139 to 146 pounds. His normal chest girth increased from 32 to 33 inches, his pulse changed from 80 to 74, and his strength, measured by the dynamometer, increased in the right hand 25 pounds, and in the left 21. He soon relapsed. Within a fortnight after the baths were discontinued, he gave up his work in the kitchen and began to talk of his old delusions, and unless he can be aroused again, bids fair to resume his former condition of apathy.

Case No. 1377. Male; age, 32; chronic melancholia; duration, five years; no alleged cause. Since admission this patient had been depressed and moody; he had active delusions of persecution, accompanied by hallucinations of hearing; voices from Heaven commanded him to fast, and he required to be forcibly fed at times. He was anæmic, and his bodily functions were sluggish. For a while he

seemed brighter, but afterward his delusions became very active; he ate sparingly, and for days at a time would take nothing but milk. He did not develop delusions relating to the bath, but took them calmly and patiently, but did not react well, and complained at times of being chilly.

The remaining cases may be summed up in more general terms. Six of the original twenty were discarded for reasons, incidental to a population of this kind, which prevented the conditions of the test being fulfilled. We have then for our conclusions data pertaining to fourteen; six men and eight women.

Weight. Of eight women, five lost in weight and three gained. The greatest gain was thirteen and one-half pounds, the greatest loss, five and one-half pounds. The smallest gain was six pounds, and the smallest loss was one-half pound. Of the men, two lost in weight and four gained; the greatest loss was twenty-four pounds, and the greatest gain was fifteen pounds. The remaining loser was diminished in weight a single pound, and the smallest gain was one and one-half pounds. The aggregate number of pounds lost was thirty-nine, and of pounds gained was fifty-six and one-half. Two of the patients were epileptics, and it was interesting to note that both lost in weight — one five and one-half pounds, the other one and one-half pounds. No influence was exerted on the relative frequency of their convulsions.

The greatest loss in weight (twenty-four pounds) occurred in case No. 1397, already recorded, where the loss was due to refusal of food from an exacerbation of his delusions.

Respiration. It would have been interesting and instructive to have been able to record the effect produced on the expansion of the chest in normal breathing and in forced respiration, and this was attempted, but on account of the demented condition of the majority, no reliable data could be obtained. The measurements recorded were taken at the level of the third rib in the interval between normal expiration and inspiration. In every instance but two it was increased; the increase was relatively greater among the women than the men, the ratio being nearly two to one. This can be explained by recalling the level at which the measurements were taken and the types of respiration peculiar to the two sexes; it is reasonable to believe that any procedure which augments the volume of the respirations without altering the type will increase the circumference of the chest in the direction of the normal respiratory effort. The greatest gain in this respect (three inches) occurred in a young woman, a case of quiet dementia, who gained seven and one-half pounds in weight and was very much

improved in appearance, but whose mental condition remained unchanged. The least gain among the women (one-half inch) occurred in a case of chronic melancholia, who lost two and one-half pounds in weight with no other appreciable change. Among the men the greatest gain occurred in case No. 1556, who gained fifteen pounds in weight, and the greatest loss was in case No. 1377, who lost during that period twenty-four pounds and whose girth was diminished two and one-quarter inches. The only other instance where a gain was not made was in the case of a man who lost one pound in weight with no change in the circumference of his chest.

Circulation. Observations based upon the pulse alone in patients of this class can not be made thoroughly reliable; in many the pulse is not perfectly regular and the mere semblance of an examination is sufficient to alter its frequency in those who are apprehensive. It may be stated, however, in general terms, that among the patients who improved, the pulse tended to become slower, while it increased in frequency or remained unchanged in those who lost in weight.

Venous congestion of hands and feet was one of the requisites for selection in the first instance, and in this respect improvement was noted in nearly every instance, in varying degrees, but it only disappeared in the few cases where improvement in other respects was considerable.

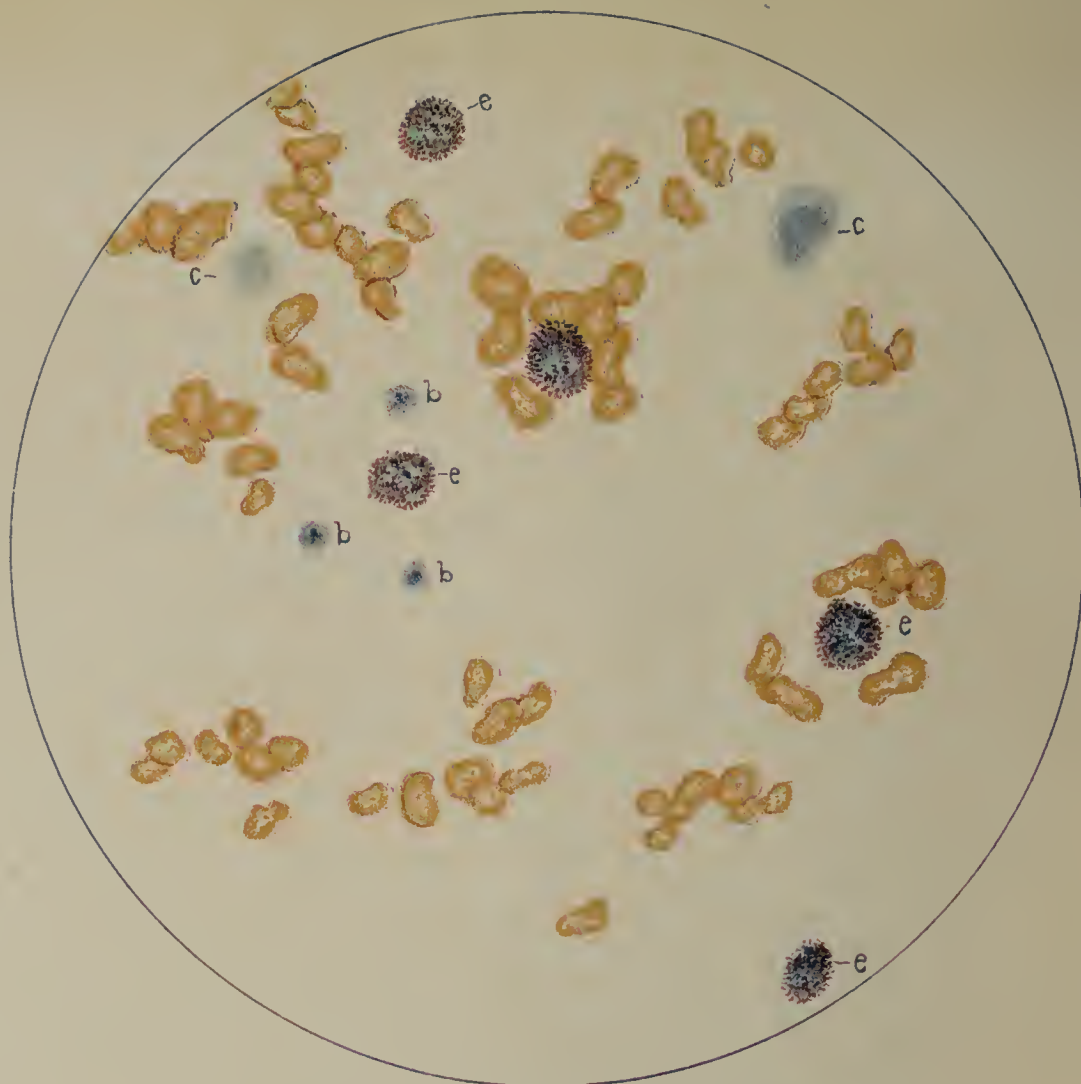
The conclusions to be drawn from such a brief survey of this much neglected branch of therapeutics point to its value as a means of warding off or at least delaying the physical stagnation which occurs in a large proportion of the insane. Every hospital has its share of a certain class of the chronic insane, happily not large, which taxes the ingenuity of physicians and nurses to provide clothing which will not be destroyed; not from an uncontrollable impulse, as glass is broken, but slowly, mechanically, a stitch started, here and there a seam, and the garment is worthless. Patients of this class are usually emaciated, anæmic, their hands are blue and cold, the pulse is feeble and rapid; they are stupid, filthy, and though the appetite may be enormous, the functions of assimilation and nutrition are markedly defective, and every indication calls for building up the strength and vitality of the body and brain. It is in this class that the cold douche seems peculiarly beneficial; it deepens the respiration, slows and strengthens the systolic waves and energizes the whole system.

At the St. Lawrence State Hospital the cold douche is employed with undoubted benefit among the recent cases, but is only one factor in the

general plan of treatment, and must share its honors with other measures hygienic and medicinal. To obtain good effects it is necessary to observe the most trifling details with accuracy and persistence, the patient should become gradually accustomed to its use, so that instead of a feeling of repugnance and dread he will enjoy it. The exposure should not be long enough to cause a prolonged feeling of chilliness; a brief shock and prompt reaction are the essential requisites for success. Flannel next the body, if adapted to the season, is comfortable and beneficial in preventing chilliness, and promotes the continued circulation in the skin. The subsequent friction and massage materially assist nature in bringing about the reaction, and should not be omitted in the feeble and debilitated. Hydrotherapy, like other therapeutic procedures, has its detractors as well as advocates, who have observed it from different points of view. It is not practicable to lay down hard and fast rules for its employment, and the best results can only be obtained by adapting it to the individual needs of the patient.

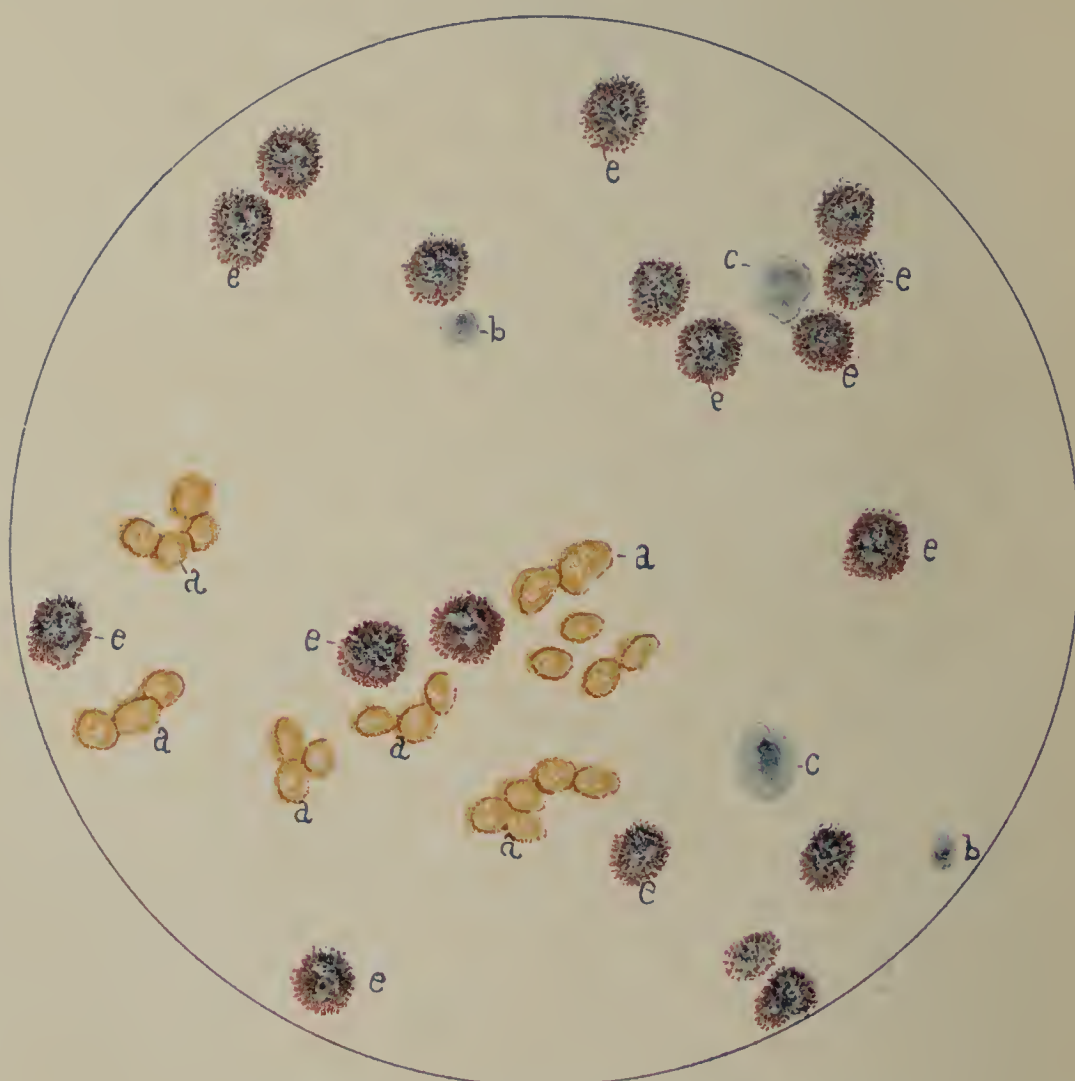
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Fig. 1.



Case No. 1819; Grave's disease.
a, red corpuscles; b, lymphocytes; c, mononuclear
neutrophils; e, polynuclear neutrophils.

Fig. 2.



Case No. 1849; general paralysis

THE BLOOD IN THE INSANE.

By JAMES BURTON, M. D., Medical Interne.

In this paper we have attempted to show the condition of the blood in several forms of insanity, with particular reference to the leucocytes as seen in specimens stained with Ehrlich's triple stain. In preparing these specimens we have used the "heat" method in fixing the blood on the cover glasses at a temperature of about 120° C., then staining and mounting them in the ordinary way. Besides this, we have used, as a means of comparison, Dr. Gowers' instruments in estimating the hæmoglobin and number of red and white discs. In some cases, owing to the active form of the insanity, it was impossible to use these instruments, and in such cases we have left the table blank.

The cases consist of three of senile dementia, four of general paralysis, one of Graves' disease, one of chronic mania, one of katatonia, one of acute mania, two of stuporous melancholia and one of acute melancholia.

Case No. 1574. Female; age, 84; a case of senile dementia. She was admitted to this hospital March 29, 1894. She had been an inmate of an almshouse three years, and her insanity dated back of that time. On admission patient was feeble and confused, but struggled and resisted the nurses. Physical examination revealed an irregular pulse and a cardiac murmur. At times she was quite violent, and made several assaults. Her appetite was fair, sleep irregular. From August twenty-fourth to October twentieth, she remained in bed on the hospital ward, and was quite feeble. On October thirtieth she pushed an excitable epileptic patient, was thrown down and sustained an intra-capsular fracture of the right femur. She rapidly failed, and died November 6, 1894.

On November second a specimen of her blood was stained with Ehrlich's triple stain, and on November sixth another specimen, obtained four hours after death, was stained and in both cases only a few polynuclear neutrophiles were found. Hæmoglobin, ninety per cent.; red corpuscles, 4,050,000; white corpuscles, 7,000.

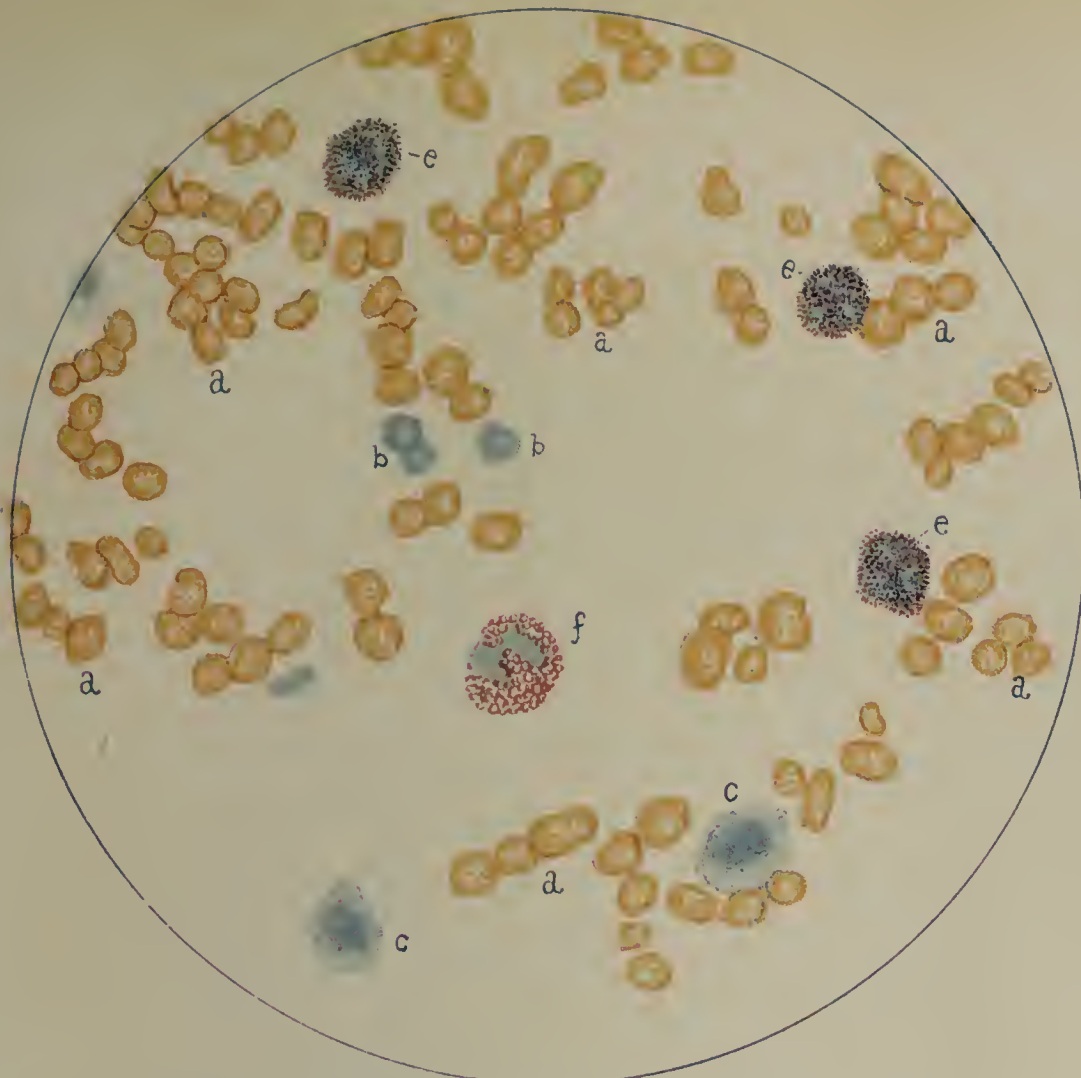
Case No. 1836. Female; age, 96; a case of senile dementia. She was admitted to this hospital October 16, 1894. No history accompanied the patient, except that she had been insane about one year. On admission she was very feeble and exhausted from the journey, and remained in bed for about two weeks. Since that time she has been able to sit on the ward during the day. She is quiet and manifests no excitement. On examination of her blood were found a few eosinophiles; a normal number of lymphocytes, and a great abundance of polynuclear neutrophiles. Gowers' instruments showed hæmoglobin, eighty per cent.; red discs, 4,170,000; white discs, 13,000. (See fig. 2, plate VI.)

Case No. 1777. Female; aged, 80; admitted August 6, 1894. She is a case of senile dementia, and it is alleged that forced abstinence from liquor and opium has hastened the mental failure. She had been insane one month when admitted to the hospital. On admission she presented the general appearance of advanced age, was small and shrivelled, and when addressed was confused and suspicious, but quite active. Physical examination revealed no gross organic lesions beyond those incident upon old age. Until September eleventh she was dressed and remained fairly quiet on the ward. On that date she refused her food and, as she was quite feeble, was placed in bed where she has remained since that time. Early in October she became so restless and confused that she was rapidly losing strength. She was given hyoscin hydrobromate grain $\frac{1}{120}$ t. i. d., and soon became quiet and has since been more comfortable.

The examination of her blood with Ehrlich's stain revealed many lymphocytes and a great abundance of polynuclear neutrophiles. Hæmoglobin, seventy-five per cent.; red corpuscles, 5,000,000; white corpuscles, 20,000.

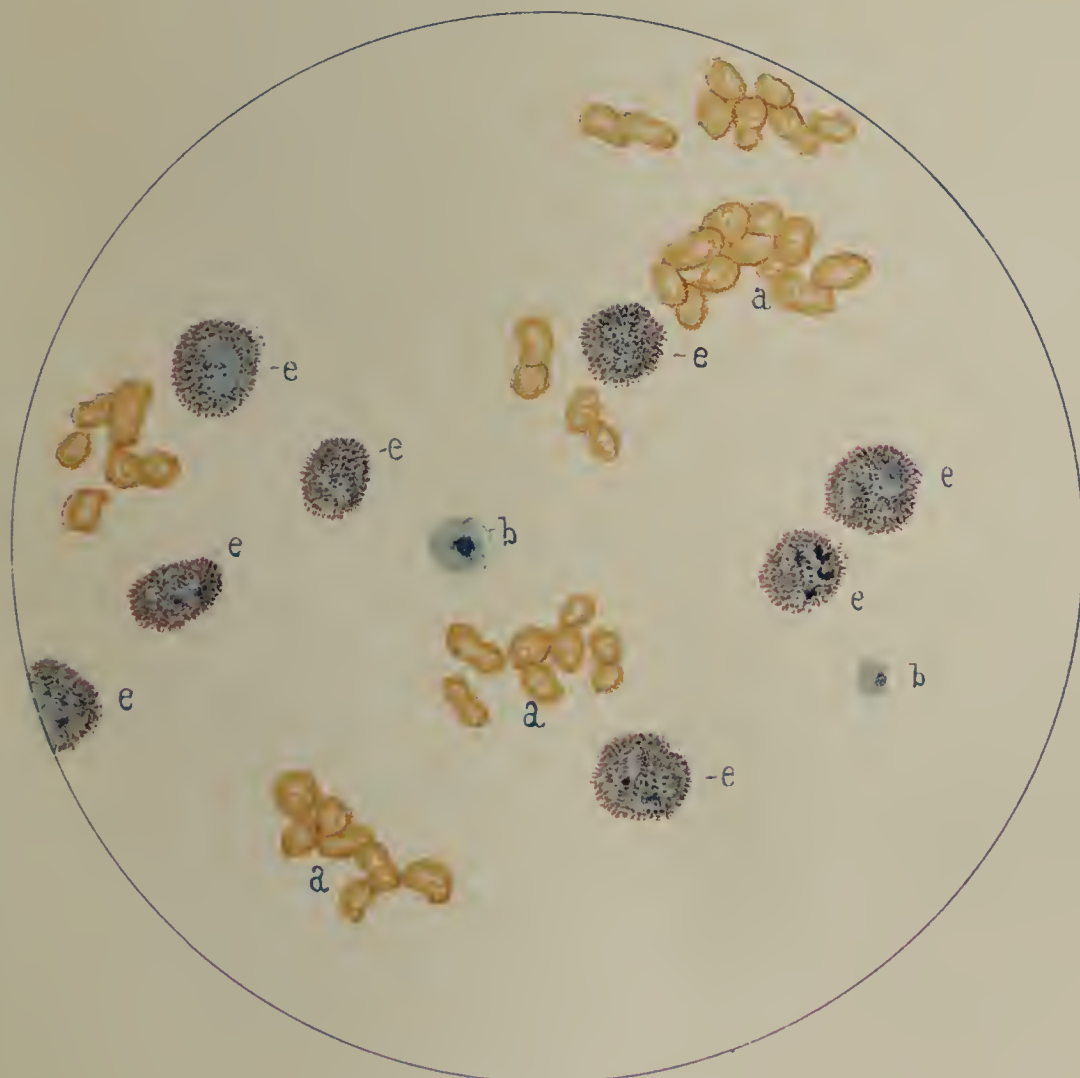
Case No. 1196. Female; aged, 39; single; nativity, New York. She was admitted to this hospital December 1, 1893, suffering from an attack of acute melancholia of one week's duration. Previous to this time she had had periods, more or less well marked, of depression, but until November 25, 1893, had shown no symptoms of violence. Since her admission she has been quiet and contented most of the time and at two different times has had parole of the hospital grounds. There have been, however, several periods of depression, each of these being preceded by periods of religious ecstasy. These periods are marked by intense excitement of a religious nature. Sometimes she believes she has committed some unpardonable sin, at others she will repeatedly shout: "Praise be to God," beginning on a low key, then rising higher and higher, then sinking again to a low key.

Fig. 1.



Case No. 1838. Stuporous melancholia;
a, red blood discs; b, lymphocytes; c, mononuclear
leucocytes; e, polynuclear neutrophiles;
f, eosinophile.

Fig. 2.



Case No. 1836; Senile dementia.

It was during one of these periods of excitement that her blood was examined and there were found: a few eosinophiles, a few lymphocytes and an abundance of polynuclear neutrophiles.

Case No. 601. Female; age, 25; nativity, New York; case of katatonia. She was first admitted to this hospital March 16, 1891, in an attack of acute mania; was discharged recovered May 25, 1891. She was readmitted March 28, 1892, suffering from sub-acute melancholia. Since that time she has had periods of excitement, of depression, of stupor, and occasionally has conversed coherently. She has also had two or three periods of catalepsy, thus presenting a perfect picture of katatonia. She has a paternal uncle who is an idiot and has two sisters insane.

The physician who sent her history wrote: "I saw the three (sisters) all crazy at once in the same house. It seemed to me epidemic. Each was very nervous, calling on God for help." On November 6, 1894, specimens of her blood were stained with Ehrlich's triple stain with the following results: An abundance of polynuclear neutrophiles and lymphocytes, and a few mononuclear neutrophiles.

On November 13, 1894, her blood was examined with Gowers' instruments with these results: Hæmoglobin, 65 per cent.; red discs, 4,410,000; white discs, 9,000. At the time of these examinations she had emerged from her cataleptic condition and was coming out of a stuporous condition, but she had a very poor circulation and would not talk at all.

Case No. 1849. Male; age, 52; nativity, Ireland; a case of general paralysis. He was admitted to this hospital November 3, 1894. His physical condition is feeble, though he is able to be up and on the ward most of the time. The duration of his insanity, according to the medical certificate, is two weeks prior to his admission, but his friends place it about three months. At present he is in an elated state or is silly, but before admission he had been violent and excited at times. Since admission he has been dull and confused; says he is going to go to Europe and take all his relatives. He is in the second stage of general paralysis, and thus far the course of his disease has been rapid. His blood, examined November 15, 1894, revealed a few eosinophiles, many lymphocytes and a great abundance of polynuclear neutrophiles.

On November 26, 1894, his blood was examined with Gowers' instruments with these results: Hæmoglobin, seventy-five per cent.; red discs, 6,990,000; white discs, 13,000. (See fig. 2, plate V.)

Case No. 1835. Colored; male; age, 30; nativity, United States; a case of general paralysis, third stage and of rapid development. He was admitted to this hospital October 12, 1894, in fair physical health. His insanity dated five months previous to his admission. Since

November tenth he has been confined to his bed, as he became weak very suddenly and was unable to stand or move. At present he is very dull, rarely speaks, but is very apprehensive, and resists all attempts to care for him. He expresses no delusions of grandeur, but has feelings of well being. Tremor of almost all muscles is well marked. Examination of his blood reveals lymphocytes and polynuclear neutrophiles in limited numbers.

One week later his blood was examined with Gowers' instruments, and there were found: Hæmoglobin, sixty-five per cent.; red discs, 5,260,000; white discs, 10,000.

Case No. 1818. Male; age, 52; nativity, New York. He is a case of general paralysis, and is just entering the third stage of the disease. He was admitted to this hospital September 24, 1894, in strong physical condition, his insanity being of "two months' or more" duration. Since his admission he has been quiet and cheerful, though of late very dull. He has had three light convulsions, and the specimens of his blood were obtained within an hour of one of these convulsions. In the specimens were found very few lymphocytes, polynuclear and mononuclear neutrophiles.

With Gowers' instruments were obtained hæmoglobin, 80 per cent.; red discs, 4,570,000; white discs, 9,000.

Case No. 1779. Male; age, 40; married; nativity, New York. He was admitted to this hospital August 8, 1894. He is a case of general paralysis of two years and a third duration, and is now in the third stage of the disease. The alleged cause of the trouble is "a fall from a barn." On admission he was happy and slightly elated. The medical certificate states that at times he was noisy and violent, but since his admission he has shown no signs of this except slight irritability at times. Soon after admission he had one severe and several slight convulsions, and since then has remained in bed most of the time. At times he is able to sit up on the ward and believes he is perfectly well and strong. The course of his disease has been very slow as compared with cases 1849 and 1835. The examination of his blood revealed few lymphocytes and mononuclear neutrophiles, and a greater number than normal of polynuclear neutrophiles.

On November twenty-sixth, his blood was examined with Gowers' instruments, and there were found hæmoglobin, seventy-two per cent.; red discs, 3,960,000; white discs, 9,000.

Case No. 1839. Female; age, 37. A case of stuporous melancholia. She was admitted to this hospital October 19, 1894. Her attack was

of two months' duration, and began with loss of memory, periods of nervousness, and loss of sleep. On admission she would look up when addressed, but could not be induced to answer questions. Her skin was sallow and dry, tongue parched, pulse feeble. She was placed in bed in charge of special nurse and given tonic treatment and liquid diet. Since admission her appetite has improved and she is brighter, though still unable to converse very much. The treatment of this case is electricity, massage and active tonics. Her blood specimens contained few eosinophiles and large mononuclear neutrophiles and many lymphocytes and polynuclear neutrophiles. With Gowers' instruments, were obtained hæmoglobin, seventy per cent; red discs, 4,860,000; white discs, 11,000. (See fig. 1, plate VI.)

Case No. 1807. Female; age, 38; American; single. She was admitted to this hospital September 13, 1894, suffering from acute melancholia. Her history states that she attempted to commit suicide twice—once by drowning, and once by taking Paris green. This is her second attack of insanity, the first occurring fifteen years ago and of two years duration. As an etiological factor in this case heredity plays a strong part, for her father and two sisters had been insane. On admission she was in feeble physical condition, was dull and depressed; soon after admission she became stuporous, refused food, and for six weeks was fed with a tube. At present she is taking an abundance of milk and is much brighter under the tonic treatment, which includes electricity and massage. On November sixth an examination of her blood was made, four slides being prepared, and there was found many polynuclear neutrophiles and a great abundance of lymphocytes. One week later an attempt was made to examine her blood with Gower's instruments, but she struggled so much and became so agitated that it was given up.

Case No. 357. Age 60; married; nativity, Vermont. She was first admitted to this hospital March 26, 1891, in a maniacal condition and was discharged improved May 22, 1891. She was readmitted September 9, 1891, and has been in the hospital since that time. She is suffering from chronic parenchymatous nephritis, and has had several uræmic convulsions, the first and most severe one occurring October 25, 1891, and the last November 7, 1894. Albumen and casts have been present in abundance in her urine at times and at times entirely absent. Once she has attempted suicide and has threatened to kill herself several times. Her delusions are those of persecution and generally of a religious nature. She is quite anæmic though in fair

physical condition. April 2, 1894, her blood was examined with Gowers' and also Fleischl's instruments and gave the following results: Hæmoglobin, fifty-two per cent.; red corpuscles, 4,200,000.

November seventh, she had a uræmic convulsion at 2 A. M.; her blood was stained at 9 A. M. and revealed an abundance of polynuclear neutrophiles and many lymphocytes. Her blood was examined with Gowers' instruments at 2 P. M., showing hæmoglobin, eighty per cent.; red discs, 3,920,000; white discs, 12,000.

Case No. 1819. Female; age, 28; nativity, Nova Scotia; married and has one child. She was admitted to this hospital July 19, 1893, in an attack of acute mania of one week's duration. She is a typical case of Graves' disease.

The three cardinal symptoms--the acceleration of the pulse, the goitre and exophthalmus--are well marked. Her pulse ranges from 120 to 140 beats per minute. The goitre is markedly soft and compressible almost to the normal size of the thyroid gland. A distinct thrill can be felt by placing the hand on the tumor. The Von Graefe symptom is but partially developed. In addition to the acute mania there are other nervous symptoms such as tremor and twitching of the muscles, especially those of the face, her sleeplessness, headaches and general irritability. On admission she was very noisy, violent and talked incessantly and incoherently. She slept very little but took a fair amount of food. Gradually she became quieter yet had periods of intense excitement and at times was restrained in bed. Electricity was employed in the treatment of her goitre but it failed to relieve it markedly. Early in February, 1894, she became much quieter and was able to converse rationally. Her appetite was ravenous and she improved in weight and strength. On May 7, 1894, she was discharged recovered from her nervous symptoms, exophthalmic goitre unimproved.

On September 25, 1894, she was readmitted in a second attack of acute mania. It was a repetition of the first attack with even more marked nervous symptoms. She was boisterous, laughed, shouted and spit on her clothing. Since admission she has continued very disturbed, will keep no clothing on and has made several sudden attacks on the nurses. Her appetite has been very good but sleep very irregular.

On November 12, 1894, an attempt was made to examine her blood with Gowers' instruments also to get specimens for Ehrlich's stain. She became very much excited and resisted all attempts to obtain the necessary drops. Finally, owing to her frenzied state, the attempt was given up after securing specimens for the Ehrlich's stain. On

examining these there was found a large increase of eosinophiles, lymphocytes and polynuclear neutrophiles. (See fig. 1. pl. V.)

Case No. 1841. Female; age, 41; single; nativity, New York. The diagnosis in her case is acute mania. She was first admitted to this hospital March 8, 1892; which she recovered and was discharged August 10, 1892. She was readmitted October 21, 1894, suffering from a second attack of acute mania of two weeks' duration. On admission she was quiet and seemed to realize her condition. Since then she has had several paroxysms of excitement and delusions of persecution and internal sensations, and at these times has made several impulsive assaults. Examination of her blood revealed eosinophiles slightly in excess, few lymphocytes, and an increase in polynuclear neutrophiles. With Gowers' instruments there were found hæmoglobin, 105 per cent; red discs, 7,730,000; white discs, 22,000.

In studying these cases we have noticed the following conditions:

1. That in the cases of senile dementia, as a rule, there is an increase in leucocytes; while in the cases of general paralysis, with one exception, they are markedly decreased, as observed also by Roncoroni.
2. That in cases with a tendency to maniacal excitement the number of leucocytes is greatly increased.

[Assembly, No. 8.] 19

THE BLOOD IN THE INSANE — TABULATED SUMMARY OF EXAMINATIONS.

Case number.	FORM OF INSANITY.	Eosinophiles.	NEUTROPHILES.			Hæmoglobin.	Red.	White.	Number slides.
			Lymphocytes.	Mono-nuclear.	Polynuclear.				
1574	Senile dementia	No.....	No.....	No.....	Few	P'r cent 90	4,050,000	7,000	8
1836	“	Few	Yes.....	No.....	Abundant	80	4,170,000	13,000	10
1777	“	No.....	Many.....	No.....	Abundant	75	5,000,000	20,000	10
1196	Acute melancholia	Few	Few	No.....	Abundant .....	.....	.....	.....	4
601	Katatonia	No.....	Abundant	Few	Abundant	65	4,410,000	9,000	4
1849	General paralysis	Few	Many.....	No.....	Very abundant...	75	6,990,000	13,000	4
1835	“	No.....	Few	No.....	Few	65	5,260,000	10,000	4
1818	“	No.....	Few	Few	Few	80	4,510,000	9,000	4
1779	“	No.....	Few	Few	Many.....	72	3,930,000	9,000	4
1839	Stuporous melancholia.....	Few	Few	Many.....	Many.....	70	4,860,000	11,000	4
1807	Acute melancholia	No.....	Very abundant...	No.....	Many.....	.....	.....	.....	4
357	Chronic mania	No.....	Many.....	No.....	Very abundant...	80	3,920,000	12,000	4
1819	Graves' disease.....	Abundant	Abundant	No.....	Very abundant...	.....	.....	.....	4
1841	Acute mania	Increased	Few	No.....	Many.....	105	7,730,000	22,000	4

PLATE VIII

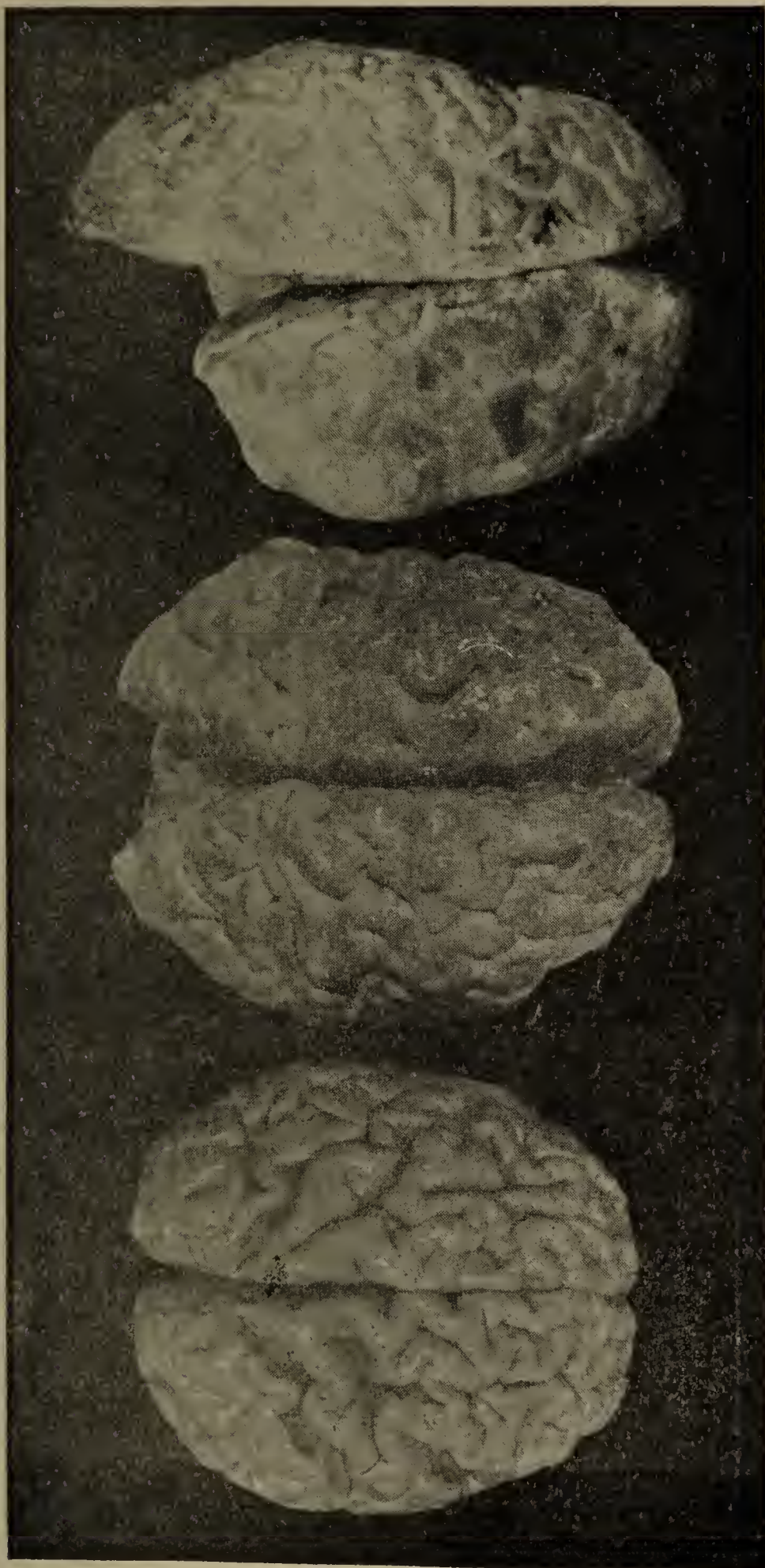


FIG. 1

FIG. 2

FIG. 3

A CASE OF HYDROCEPHALUS EX VACUO.

By J. M. MOSHER, M. D., First Assistant Physician.

Figure 1, of plate VIII, represents a reproduction from a photograph of a brain whose right occipital lobe had been completely absorbed. The absorption of disintegrated brain tissue and its replacement by serum is not an unusual result of limited apoplexies, but in such extensive lesion as that shown in the plate, is of more than passing interest. The change is to be regarded as secondary, probably, in the present instance, to the meningitis so prominent in the *post mortem* appearances, and in the extensive destruction which places the arachnoid spaces of the convexity in direct communication with the ventricle, is analagous with the so-called porencephalic defect described by Kundrat.

It is to be regretted that no medical history of the case is available. The patient was admitted to the hospital July 26, 1894, with the aspect of complete and helpless idiocy, and she remained in this state until September 12, 1894, the date of her death. She was 16 years of age, and her disease was said to have existed for one year preceding admission. The following brief statement of the case was furnished by her father: "About a year ago I noticed that it was harder than usual for her to learn her lessons. It was during examination at school; she failed, and I took her from school. Shortly afterward I noticed a twitching of the mouth when speaking, and she became quite nervous. This continued until the 23d of January, 1894, when she had a partial stroke of paralysis, attributed by her physician to a hæmorrhage of the brain. Since then she has grown worse and worse mentally." During her residence in the hospital she failed steadily, and no symptoms of focal import were discernible.

At the necropsy all viscera, except the brain, appeared normal. On removal of the calvaria about seven fluid ounces of bloody serum escaped, more especially from the site of the right occipital lobe, over which the membranes immediately collapsed. The dura was not thickened or adherent, but the pia mater was engorged with blood and thickened, the intense injection being accompanied in several areas by

localized clotting. The arachnoid was opaque in the line of the vessels. The circle of Willis was well developed on the left side, but on the right side its vessels were attenuated and almost imperceptible, so that the posterior communicating artery was with difficulty discovered. At the junction of the middle cerebral and internal carotid, and extending forward to the anterior communicating artery, was an irregular patch of atheromatous degeneration, and in the vessel at this point was a small branching thrombus covered with fresh coagulum. The disorganization of the right hemisphere extended on the base from the occipital lobe forward almost to the fissure of Sylvius. An incision in this area laid open the ventricle lying directly inside the membrane and without intervening cerebral substance. The frontal lobes coalesced at the genu of the corpus callosum, and the pia was adherent generally over the surface of the brain, large areas of cortex stripping with its removal.

AN INTRACRANIAL TUMOR COMPLICATING GENERAL PARALYSIS.

Reported By ROBERT G. COOK, M. D.

Case No. 1567 was admitted to the hospital March 15, 1894. He was 56 years old, married, born in the United States and was a sailor by occupation. It was said that he used tobacco, but not liquor. The patient stated that he had had specific disease, and he had cicatrices on both legs. His wife wrote that he had a stroke of apoplexy in November, 1892, and that he was under medical treatment for nine months after it. In October, 1893, he became ugly to his wife, left his home, and refused to have anything to do with her. There was no history of a period of maniacal excitement, but he became dull, feeble and filthy, and was excitable. He complained of pain in the back of his head to the physicians who examined him in order to certify that he was insane.

On admission, the patient was quiet and talked rationally, but thought that he was at a marine hospital. Physical examination showed dullness on the right side of the chest, and some change in the quality of the respiratory murmur; the heart was normal. He was unable to walk without assistance, and his patellar reflexes were much exaggerated. His tongue was tremulous, and his articulation was imperfect. He was put upon iodide of potash and bichloride of mercury. On March seventeenth he became very dizzy, and was put to bed, and the next day saw spots before his eyes. After that time he remained in bed and was contented, and usually said that he felt well. In April his face became drawn to the right, but otherwise there was no marked change in his condition, except that he gradually lost strength, until May twenty-fifth, when he had a chill followed by a rise of temperature to 105°. The temperature gradually fell to normal in twenty-four hours, and was accompanied by no physical signs of acute disease. In June he developed a purulent conjunctivitis in the left eye, which was not much benefited by local treatment. In July he began to complain of dimness of vision, and the paralysis of the left

side of the face increased without paralysis of trunk or limbs. He continued to fail in strength, and fell several times in trying to get out of bed. The mixed treatment was stopped, and he was given iodide of potash. He had two chills on July eighth, but his temperature rose to only $99^{\circ}.4$, but on the twenty-fourth a chill was followed by a temperature of 104° , and on the thirty-first by one of 101° . Early in August it was noticed that he became unconscious if he was placed in a chair, but that his face seemed rather flushed at the time. On the fourteenth of August he became comatose with stertorous breathing, and his right arm was flexed and rigid while his other limbs were flaccid. This condition lasted but a few hours, but was followed by some delirium. On the seventeenth he had a chill at nine in the morning (the first since July thirty-first), another at 9.40 on the morning of the eighteenth, and a third at 9.15 the same evening. Each chill was followed by a rise of temperature and then by sweating. In the latter part of August he became totally blind, but he was not strong enough to permit of an examination with the ophthalmoscope. He had chilly sensations or chills at irregular intervals during the rest of the month of August, and some fever after each chill. A corneal ulcer developed in the left eye and extended rapidly, though it began on the surface, and on the thirty-first inst., the lens came out. The patient became very dull and failed steadily, and had a short period of coma on September second. He had no decided rise of temperature until the seventh, when a chill was followed by a temperature of $103^{\circ}.4$. He had an irregular fever from that time until his death, and perspired freely at intervals. On the tenth he became comatose, and had well marked Cheyne-Stokes respiration. On the eleventh the coma continued, and his breathing was rapid and irregular, but not of the true Cheyne-Stokes type. He died at 12.05 A. M., on the twelfth of September.

An autopsy was held fourteen hours after death. The body was emaciated and rigor mortis was well marked. There were a number of small round cicatrices on both legs. The skull cap was of normal thickness and consistency. The dura was thickened and somewhat adherent to the skull; there were a number of adhesions between the dura and pia beneath the base of the brain.

There was a tumor about an inch and a half in each diameter, of irregular form, and attached by a narrow pedicle to the dura over the posterior aspect of the petrous portion of the temporal bone on the left side. This tumor extended from the basilar artery, which it displaced somewhat to the right outwards about an inch and a quarter. It had caused atrophy and softening of the pons, and had displaced

the medulla oblongata to the right. The left lobe of the cerebellum was pushed upwards and backwards, and its pedicle was softened. The tumor was firm, richly supplied by blood vessels, and free from cerebral attachments. The photograph, number 1, plate VII, shows the tumor in place immediately after the removal of the brain. There were adhesions between the pia mater and the cortex on the under surface of the temporo-sphenoidal lobes. There were also adhesions which left erosions on stripping the membrane on the upper surface of the frontal lobe, but the brain was not examined further as it was put in a solution of chloride of zinc to be preserved as a permanent specimen.

The only lesions of importance in the thorax and abdomen were thickened pleuræ, most marked on the right side, and congestion of the lower lobes of both lungs. There was also slight thickening of the bicuspid valve of the heart, and a thickened patch just above it, and several patches in the aorta. The liver and spleen were both firm, and both kidneys had several small cysts, and in both the capsules were somewhat adherent and the cortices thin, but the markings were distinct.

The interesting features of this case, aside from its complexity, are the symptoms which were produced by the tumor. Pain in the head was noticed before the patient's admission to the hospital, and was located in the back of the head. The gradual loss of sight was undoubtedly due to optic neuritis. The disturbance of temperature and the sweating showed the effect of pressure on the medulla, as did the loss of consciousness when the patient attempted to sit up, for the loose attachment of the tumor then allowed it to press more heavily on the medulla. There was also the disturbance of respiration of the Cheyne-Stokes type which only appeared a short time before death. It is interesting to note that although the tumor pressed upon the medulla, there was no vomiting while the patient was in the hospital, and no history of any before that time.

CASE OF ATTEMPTED HOMICIDE AND SUICIDE; CONCEALED DELUSIONS.

BY THE MEDICAL SUPERINTENDENT.

The case reported herewith, ended in such a tragic manner, that it has a medico-legal as well as a medical interest, and calls into question the possible recovery of any case of systematized insanity.

Case No. 875. Admitted November 21, 1892; male; aged, 32; single, with no steady occupation; antecedents fairly good; common school education; mild liquor and tobacco habit; strong physical condition and normal excretions, but irregular sleep; answers questions readily—coherently. In the certificate for commitment it was stated, that he said “various persons were talking about him and accusing him of the acts of his early life. That the saints had directed them to do this. That they do not talk in his presence, but he hears them in the distance. He thinks the Catholic priests direct them to do so. He has borne it as long as he can and must take measures to stop it. Was very quiet but appeared resolute in his determination to use means he thought proper to punish his accusers. His appearance was a flushed face, eyes injected and a downcast look. He has threatened to burn the house, to inflict injuries on various persons.”

On admission the patient was composed and freely admitted his delusions. He had no physical disturbance and all his organs appeared to be normal. Further inquiry into the earlier history of his insanity showed the delusions to be primary and his classification was chronic paranoia. For a month after admission he was quiet, reserved and rather dull, but would talk when questioned and admit his delusions. Two months after admission his delusions manifested more of a persecutory character and he frequently made assaults upon his associates. He evidently had hallucinations of hearing during this period, although he would not admit them. He was very reticent and had the attitude and facies of suspicion. From this period he progressively improved both in appearance and conduct. He became quiet and well-behaved, inclined to industry, and had some regard for his personal

appearance and clothing. On April 3, 1893, he explained "that the reason he assaulted others was because the priest had given them the power to tell what he was thinking about, and if they said too much about it, he hit them;" thus admitting his aural hallucinations. At this period he was given a parole of the hospital premises, which he retained during his residence in the hospital, observing its conditions strictly and punctually. During the summer his condition remained uniformly good, although he still retained his delusion regarding the power of the priests to read his mind, and occasionally had the "thought echo" hallucination. He never gave evidence of concealing anything, and would freely talk about his delusion. In September he was placed in the general store as assistant storekeeper and developed into a very useful helper. He occasionally asked about his discharge but did not seem discontented, or anxious to leave. During the winter his correspondence with a brother in a neighboring county, was considered by the latter as evidence of his return to sanity, and he requested his brother's discharge, upon the ground that he was capable of self-support. The patient did not, however, show any anxiety about going away, and, as a certificate of recovery could not be made, his discharge was delayed. During several months I had several interviews with him, when he uniformly appeared willing to talk about himself and his previous condition, admitting his continued belief in priestly power at mind-reading, but laughing about it as a harmless attribute that did not trouble him much. An earnest effort was made to discover other delusions, and it is my belief that if they had existed he would have admitted them. On May 9, 1894, he was paroled for thirty days into the custody of his brother, who had requested his discharge, and was permitted to go alone, by cars, to him, where he arrived about 10 A. M. His brother reports that he found him natural and that he appeared to him in every respect sane. Towards evening he became restless and expressed a desire to visit another brother a few miles distant, and was sent there by carriage. This brother reports that he acted wild and unnatural; that he visited the neighboring store and on his return seemed anxious to write some letters; that during the next day he wrote the letters in the yard with a pencil and would talk incoherently about priests, God, the devil and Dr. ——. Towards evening he insisted upon going to a neighboring village upon some important business, and his brother carried him part way in a buggy and when he left him, the patient showed him a revolver which he had purchased the previous evening in the village store, at the same time stating that important matters would be settled

and repeating his incoherent talk. About eight o'clock the same evening he appeared at the house of a physician, an old resident, requesting an interview. The two men were alone in the consulting room and the doctor reports that the patient was collected and did not appear excited. The patient then told the doctor that nineteen years before he had treated him for one private disease and had given him another and a worse one. The doctor denied having ever treated him (afterward shown to be true), but the patient wanted him to settle, and when told there wasn't anything to settle, he said, "I'll settle for you," at the same time drawing a revolver from his breast and firing twice at short range. Following this there was a terrible struggle in which the patient, like a vindictive fiend, fought to destroy his adversary with knife thrusts, after his revolver failed him, and finally under the impression that he had succeeded, ran away and within a few hundred feet shot himself through the brain and was found dead. The following are the letters that were written by the patient on the day of the tragedy and mailed previous to the assault and suicide:

" May 10, 1894.

" *to the Editor:*

"The papers were so anxious to publish what I had done and to help join in the devil persecutions you had ought to be willing to publish the last request of a dying man. The Catholic priests by communing with the devil put a curse on me as soon as I was born, and have hired people with promises not put the evil spirit on them so hard and some with threats and curses, if they told me that they was in league with the devil or that they told everybody I came near what I was thinking about and kept their lies and persecutions a secret from me until about 2½ years ago when they came out through the papers and working through the people with open persecutions and have kept it up ever since they have defied the law of this country and keep the scandal abooming to the disgrace of decent society. A disgrace to the Catholic church, and everybody else but but working with the people nearly all the time they can make them commit more sin and make the world more wicked. they are living in Adultery with their sisters of mercy for their wives without marriage for they like a change, for I heard a priest say so with my own ears, but they tell the people it is none of their business what they do but if they did tell any one what they do they made them take an oath that they would not tell any one or take any notice of it. for they used to marry some as other people until queen Mary of Englands time then they passed a resolution not to marry so they could have as many women as they liked. Their

devilish actions should be put down the same as they put them down in England. if their lives were put a little more in jeopardy they would not be so fast to jeopardize other peoples lives. but as Dr. ——— has took an active part in the ruination of my life I am on my way to hunt him up and when I find him I shall shoot him on sight and then shoot myself and put an end to their persecuting me and then I will be a great saint (like the priests) for I sacrifice all hopes of heaven for to stop this scandal. if people would read the history of England they can devilish actions of the Catholic priests; and see that it comes from the devil instead of the lord.

“—————.”

“May 10, 1894.

“BROTHER GEORGE.—I left my two satchels in B——— will you send and get them one large and one small satchel one new silk umbrella silver metal on end of handle. satchels tan colored and contains as follows; 1 concave round corner razor. mug. brush. and strop \$2.00. 1 razor hone \$2.00; 6 uretha sounds \$6. 2 gold rings 1 plain hoop 14k. 14 pwt. 1 flowered band ring 18k, been broken and soldered rings value \$5.00 1 gold necktie pin round letter G. in black in the center \$2.00. 1 red and white silk neck scarf cost 3.50 it is not soiled any. 2 white shirts and some other things. wrappers. 1 coat and vest but not of much value. things of any value I have mentioned. when this scandal came out about me I thought it would be the best thing to give myself up, but the Devil through the Catholic priests would not let the law take its course so I have turned loose persecuted called Insane when I told the truth. but you know how it has been so to put the finishing touches I put on a bold front and am going to hunt up Dr. ——— who has took an active part in the ruination of my life and end his days and then blow out my own candle and then we will be a couple of things of the past. I gave myself up at police station No 4 N——— St. He took a jack knife from me, pearl handle German silver lining and tips, 2 blades worth \$2.00 at the least, and did not give it back. I worked for ——— he owed me \$3.50 when I gave myself up and I never got it. my things I left at the boarding house where all his men got boarded I think it was ——— his house was the next house below the shop and the boarding house was next to his. he was a galvanizer and tinner. At ——— N——— St he had a gold and silver plating shop up town somewhere. W——— said J——— has took my trunk and violin and picked the lock so I do not know whether I have got anything out there or not, but if you can find my violin you can have it for H———, that is all that is necessary to write at present.

“F——— G——— W———.

“if anything is missing you can look to Mrs. ——— for them she came over to station No. 4 and got my keys. I heard her ask for them and tell over some things I had when she brought them back.

“————”

The widespread press reports of this unfortunate occurrence, with few exceptions, contained criticisms upon the frequency with which dangerous lunatics were thrust upon the community from insane hospitals, and upon the uncertain value of an alienist's judgment.

The chief question involved in this case is whether the delusion concerning Dr. ——— was harbored and concealed by the patient during his hospital residence, or whether it was the result of maniacal accession and a rapid evolution of delusions resulting from the unbalancing effect of his visit at home. His letters of May tenth would sustain the former belief, and his conduct and clinical history the latter. The patient had a vice of organization that was further debased by an irregular life, resulting in gradually developed insanity. Under the influence of a regular life in the hospital he gained some stability, but not a resistance to an untoward environment, and easily succumbed to the first excitation to which he was exposed.

The lesson taught by the foregoing case is, that remissions in systematized insanity should be regarded in a very doubtful light, even if the stereotyped delusions wholly disappear.

AN ACUTE CASE OF GENERAL PARALYSIS.

Reported by ROBERT G. COOK, M. D.

Case No. 1801 was admitted to the hospital on September 5, 1894. He was about forty years old, single, born in Ireland, and a laborer by occupation. It was said that he used liquor and tobacco moderately, but he had been in the hospital in 1892, suffering from a short attack of mania, apparently due to the excessive use of liquor. There was no history of his condition up to two weeks before his admission in September, but he had been at work up to that time. He was very excited and violent before his admission, and ran about the streets shouting and assaulting people. He struggled violently with the policemen who took him in custody, and it required four of them to manage him. He continued to be very violent when in jail, and struggled vigorously at every opportunity.

On admission the patient seemed very much exhausted, and was carried from the carriage to the reception room. It was stated that it had required five men to take him from the jail to the carriage when he started on his journey. His heart action was very rapid and feeble, but there were no physical signs of organic disease of either heart or lungs. He was given a moderate amount of stimulants in the form of whisky and digitalis, and the next morning seemed stronger, but, though entirely irrational in his conversation, he showed no tendency to violence. He took no food, however, during the day and died suddenly at 9.30 in the evening, a little over twenty-four hours after admission.

An autopsy was held twelve and a half hours after death, under the direction of the coroner. The body was well nourished; there were a number of old bruises on the skin and rigor mortis was well marked. The skull cap was thickened and dense, and on its removal a large quantity of bloody serum escaped. The dura was adherent to the skull and to the pia along the great longitudinal sinus in the area of the Pacchionian bodies, which were greatly enlarged. All the vessels of the brain and pia were distended with blood, and streaks of whitish opacity followed the course of the larger vessels in the pia. There

were adhesions between the pia and the cortex so that erosions were left when the membrane was stripped off, which were especially marked along the longitudinal sinus and at the upper extremities of the ascending convolutions on both sides. The upper half of the right ascending parietal convolution, extending to the interparietal sulcus, for a space of about one and one-half square inches, was flattened and sunken. The outer margins of the optic thalami were symmetrically softened on both sides and the degeneration was also marked in the genu of the corpus callosum. The ganglia themselves were of good consistence, but were permeated by enlarged and distended vessels. The vessels of the ventricles were also distended especially on the right side. The brain as a whole was well formed, the sulci were deep and the convolutions were well developed. The structure was firm except in the particulars mentioned.

There were no marked lesions in the thorax or abdomen except that the kidneys showed signs of disease. In both of them the capsules were somewhat adherent, the cortices thickened and the markings fairly distinct.

ONE HUNDRED AUTOPSIES.

Reported by THOMAS CONANT SAWYER, M. D., Medical Interne.

The following analysis of one hundred consecutive autopsies at this hospital is prepared and offered as a contribution to the aggregate statistics of morbid anatomy of persons dying insane. Such a record is chiefly in evidence when it is desired to show persistency of certain morbid conditions. The importance of giving negative as well as positive results can be appreciated by investigators who work in percentages. If it has no other value it is a report of part of the medical work of the hospital. The autopsical records have been reduced to as concise terms as possible, to show only the positive morbid changes. In the following table is shown (1) the autopsy number; (2) the hospital case-book number; (3) the age; (4) sex; (5) cause of death; (6) form of insanity; (7) alleged causes of insanity; (8) duration of insane period.

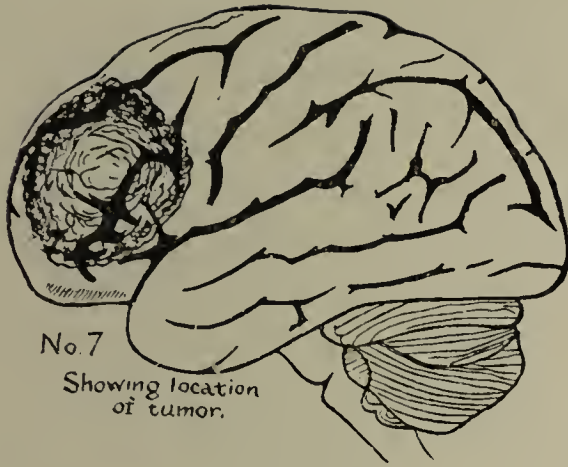
The microscopical examinations have not been included, as they have not been made of all morbid tissues, and hence, for purposes of comparison would not enhance the value of this report. These may be a fruitful subject for future consideration. Following the table is given a brief description of the morbid anatomy in individual cases, grouped by forms of insanity. The numbers of the plates correspond with the autopsy numbers.

TABLE OF ONE HUNDRED AUTOPSIES (SAWYER).

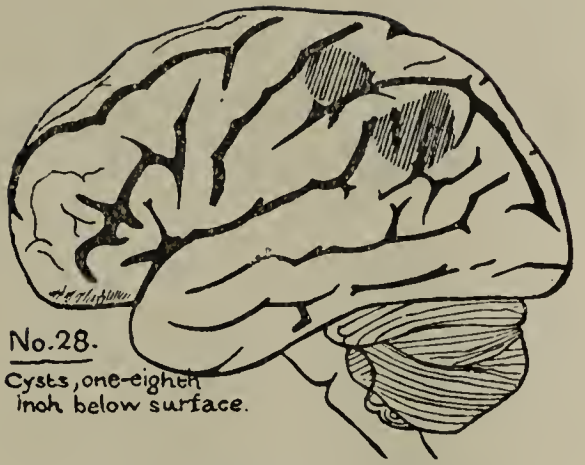
Autopsy number.	Case book number.	Age.	Sex.	Cause of death.	Form of insanity.	Alleged causes.	Duration of insane period.
1	174	85	M.	Chronic cystitis.....	Senile melancholia (acute).....	Senility and excessive use of tobacco	4 months.
2	196	80	M...	Fracture of odontoid process of axis.....	Chronic melancholia	Intemperance	Unknown.
3	130	72	F.	Death following syncope. Fatty degeneration of heart			
4	58	81	F.	Chronic meningitis	Dementia.....	Unknown.....	12 years.
5	169	80	F.	Intra-capsular fracture of hip	Senile dementia	Unknown.....	17 years.
6	7	49	F.	Paralysis, following degeneration of basal ganglia..	Senile dementia	Unknown.....	Unknown.
7	237	32	F.	Tumor of brain	Chronic mania, with remissions..	Unknown.....	Unknown.
8	138	38	M...	Rupture of bladder	Dementia (stupor)	Impoverished living.....	1 year.
9	255	40	M...	Cerebral tumor	General paralysis	Unknown.....	2½ years.
10	194	63	M...	Chronic meningitis	Organic dementia	Inebriety and heredity ..	8 months.
11	126	66	F.	Dislocation of first two cervical vertebrae	Dementia.....	Unknown.....	10 months.
12	208	78	F.	Intestinal obstruction; peritonitis from perforation ..	Dementia.....	Unknown.....	Unknown.
13	315	39	M...	Asphyxia from suspension (suicide)	Senile dementia	Senility	9 months.
14	355	32	M...	General peritonitis, following ulcer of bladder	Acute melancholia	Business embarrassments.	7 months.
15	479	43	M...	Cerebral apoplexy; multiple cerebral aneurism ...	Acute melancholia	Unknown.....	3 months.
16	489	54	F.	Fracture of base of skull. Intra-cranial hemorrhage ..	Primary dementia, organic	Unknown.....	8½ months.
17	543	36	M...	Chronic Bright's disease; uræmia	Dementia.....	Unknown.....	Unknown.
18	329	89	F.	Debility of old age.....	Epilepsy	Unknown.....	Several years.
19	133	49	F.	Pulmonary gangrene	Senile dementia	Unknown.....	Unknown.
20	162	80	F.	Acute peritonitis	Dementia.....	Unknown.....	8 years.
21	82	31	M...	Typhoid fever; peritonitis from perforation.....	Dementia.....	Senility; loss of friends ..	Unknown.
22	98	53	F.	Chronic enteritis	Dementia.....	Epilepsy.....	Unknown.
23	29	41	M...	Tubercular peritonitis.....	Chronic mania	Unknown.....	4 years.
24	614	24	F.	Cerebral meningitis (syphilitic)	Dementia.....	Unknown.....	Unknown.
25	729	59	M...	Chronic nephritis.....	Organic dementia	Syphilis	10 weeks.
26	648	57	F.	Acute peritonitis, following faecal impaction.....	Terminal dementia	Unknown	8 years.
27	373	37	M...	General paralysis.....	Dementia	Heredity; overstudy in youth	40 years.
28	521	52	M...	Chronic nephritis; chronic endocarditis; hypostatic pneumonia	General paralysis	Sexual excitement.	1 year.
29	342	50	F.	Cerebral apoplexy.....	Organic dementia.....	Cerebral hemorrhage	18 months.
30	717	42	M...	General paralysis; hypostatic pneumonia	Sub-acute mania	Climacteric	1 year.
31	745	62	M...	Rupture of heart.....	General paralysis	Alcoholism; specific	6 months.
32	163	57	F.	Chronic nephritis; obstruction to common duct....	Epilepsy	Heredity	16 years.
33	354	62	F.	Cancer of liver	Dementia	Unknown	Unknown.
34	156	43	F.	Appendicitis with perforation.....	Chronic melancholia.....	Typhoid; disappointment in love.....	34 years.
35	722	50	M...	Stricture of rectum and transverse colon.....	Dementia	Masturbation.....	30 years.
36	132	52	F.	Amyloid degeneration of kidney	Chronic mania	Unknown	4 years.
						Unknown	7 years.

37	639	25	F ..	Chronic cerebral meningitis with cerebritis; gastro-intes. catarrh.....	Acute melancholia.....	Unknown	17 months.
38	630	41	M...	General paralysis	General paralysis	La grippe; predisposition	3½ years.
39	831	72	F ..	Cardiac thrombosis; cerebral apoplexy	Organic dementia.....	Cerebral apoplexy	5 months.
40	892	84	M...	Cerebral apoplexy	Senile dementia.....	Unknown	8 years.
41	394	52	F ..	Acute endocarditis; endarteritis; chronic parenchymatous nephritis	Chronic mania	Unknown	Unknown.
42	904	38	M...	Purulent meningitis; general paralysis	General paralysis	Overwork; loss of wife ..	6 months.
43	832	52	F ..	Septicæmia and exhaustion from acute insanity....	Acute mania	Unknown	7 months.
44	691	74	M...	Chronic nephritis; hypostatic pneumonia	Terminal dementia	Unknown	30 years.
45	604	16	F ..	Empyema, dilatation of stomach	Imbecility.....	Phys. exertion and exposure with suppression of menses, followed by hyperæmia of brain....	3 years.
46	545	71	F ..	Cerebral apoplexy; valvular disease of heart with hypertrophy	Organic dementia.....	Unknown	2 years.
47	700	38	M...	Tuberculosis of lungs; caries of spine	Terminal dementia.....	Unknown	11 years.
48	936	70	M...	Lobar pneumonia; acute peri- and endo-carditis....	Senile dementia.....	Unknown	Unknown.
49	89	73	M...	Lobar pneumonia	Chronic mania	Unknown	2 years.
50	926	53	F ..	Cerebral apoplexy	Organic dementia.....	Heredity	1½ years.
51	240	43	M...	Lobular pneumonia	Melancholia	Alcoholism.....	2 years.
52	39	62	M...	Obstructive jaundice; hypostatic pneumonia; aortic stenosis.....	Terminal dementia.....	Unknown	Unknown.
53	13	62	F ..	Cancer of omentum	Chronic mania	Unknown	Unknown.
54	635	67	M...	Syphilitic meningitis and arteritis; meningeal apoplexy	Chronic mania	Injury to head	1 year.
55	859	47	M...	Cerebral meningitis; encephalitis	Organic dementia.....	Unknown	5½ months.
56	799	54	M...	General paralysis (syphilitic)	General paralysis	Chronic diarrhoea; 25 yrs.	1½ years.
57	558	40	M...	Dilatation of heart; cedema of lungs; nephritis....	Organic dementia.....	Alcoholism and sudden withdrawal.....	18 months.
58	925	52	M...	Broncho-pneumonia; chronic meningitis	Acute mania	Unknown	4½ months.
59	703	79	M...	Chronic endocarditis with hypertrophy; pneumonia of heart disease	Terminal dementia	Ill-health from anxiety ..	11 years.
60	245	29	F ..	Lobular pneumonia; chronic catarrhal bronchitis..	Acute mania	Pregnancy	2½ years.
61	1012	24	F ..	Purpura hæmorrhagica	Acute mania	Miscarriage	3½ months.
62	761	35	M...	General paralysis	General paralysis	La grippe	1 year.
63	814	55	F ..	Exhaustion of acute insanity	Acute melancholia.....	Anxiety and overwork....	10 months.
64	851	58	M...	General paralysis	General paralysis	Excessive use of opiates ..	15 months.
65	573	56	M...	Fatty degeneration and dilatation of heart.	Chronic mania	Unknown	Unknown.
66	813	73	F...	Valvular disease of heart, with dilatation; myoma of uterus.....	Senile dementia.....	Influenza and heart disease	18 months.
67	855	41	F...	General paralysis (syphilitic)	General paralysis	Dissipation	1½ years.
68	86	56	M...	Phthisis pulmonalis	Terminal dementia.....	Unknown	8 years
69	1187	32	M...	Sub-acute meningitis.....	General paralysis	Syphilis	4 months.
70	W. B. L.	34	M...	Leukæmia	Not insane	Dependancy from loss of wife and children.....	2 years, 1 month.
71	523	41	M...	General paralysis	General paralysis	Unknown.....	12 years.
72	881	36	M...	Phthisis pulmonalis	Chronic melancholia.....	Unknown.....	33½ years.
73	669	57	M...	Chronic nephritis.....	Chronic mania	Unknown.....	

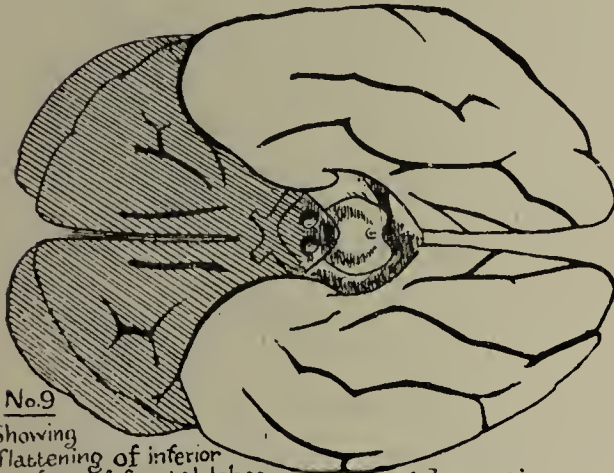
Autopsy number.	Case book number.	Age.	Sex.	Cause of death.	Form of insanity.	Alleged causes.	Duration of insane period.
74	752	55	M...	Edema of lungs; chronic parenchymatous nephritis; phthisis pulmonalis.	Sub-acute mania	Unknown.	2 years.
75	612	23	F...	Epidemic influenza; acute catarrh of air passages	Acute mania	Leucorrhoea.	3½ years.
76	1318	75	F...	Acute pleuritis; lobar pneumonia.	Dementia.	Unknown.	Unknown.
77	1350	34	F...	Acute tonsillitis; pachymeningitis; exhaustion of chronic insanity	Imbecility	Traumatism	Unknown.
78	1380	45	M...	General paralysis	General paralysis	Unknown.	Unknown.
79	1548	42	M...	Lobar pneumonia and fatty degeneration of heart.	Terminal dementia.	Unknown	7 years.
80	1173	55	F...	(cerebral apoplexy.	Organic dementia	Overwork and trouble.	1 year.
81	1365	50	M...	General paralysis.	General paralysis	Unknown.	Unknown.
82	179	45	M...	Locomotor ataxia	Organic dementia.	Alcoholism, sunstroke, excessive use of medicines	5½ years.
83	1309	38	F...	Cerebral syphilis	Dementia.	Unknown	Unknown.
84	699	50	M...	Lobar pneumonia.	Terminal dementia.	Unknown	13 years.
85	293	41	M...	Cerebral apoplexy.	Epileptic dementia.	Epilepsy.	Unknown.
86	1343	55	F...	Uræmia	Chronic mania	Unknown.	Unknown.
87	1542	79	M...	Lobar pneumonia	Dementia	Unknown.	14 years.
88	803	44	F...	Chronic lepto-meningitis (specific).	Acute mania	Uterine trouble.	21 months.
89	1114	55	F...	Acute cholecystitis	Sub-acute melancholia.	Unknown.	9 months.
90	1239	57	M...	Bronchitis; asthma; emphysema	Terminal dementia.	Unknown.	Unknown.
91	1590	81	M...	Sub-acute pericarditis, with effusion and cardiac hypertrophy	Senile dementia.	Senility	6 months.
92	1474	63	F...	Pachymeningitis.	Chronic mania	Unknown.	Unknown.
93	1120	46	M...	Cerebral apoplexy.	Terminal dementia.	Unknown.	Unknown.
94	1719	55	M...	Acute meningitis; cerebral softening	Acute mania	Unknown.	2 months.
95	1587	85	F...	Acute catarrhal pneumonia.	Senile dementia	Senility.	3 years.
96	124	30	F...	Pulmonary oedema and porencephaly.	Epileptic dementia.	Epilepsy.	Unknown.
97	1612	43	F...	Acute gastric catarrh.	Terminal dementia.	Anxiety and sickness	4 years.
98	1774	36	F...	Exhaustion of acute delirium; acute encephalitis	Acute mania (delirium).	Ill health, laceration cervix and perineum	2 weeks.
99	879	44	M...	General paralysis.	General paralysis	Business worry.	4 years.
100	908	36	M...	Intestinal and pulmonary tuberculosis.	Acute melancholia.	Failing health and trouble	2 years.



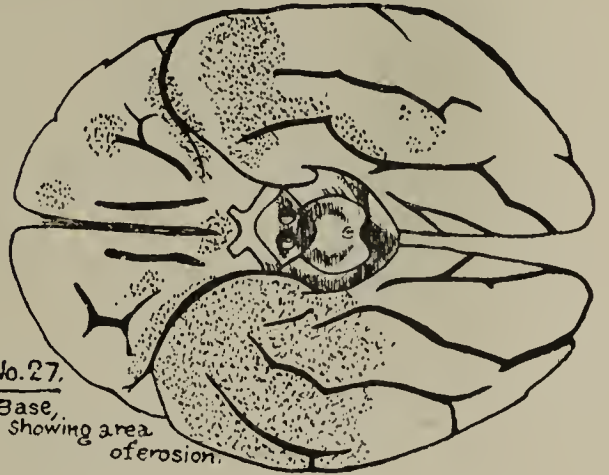
No. 7
Showing location
of tumor.



No. 28.
Cysts, one-eighth
inch below surface.

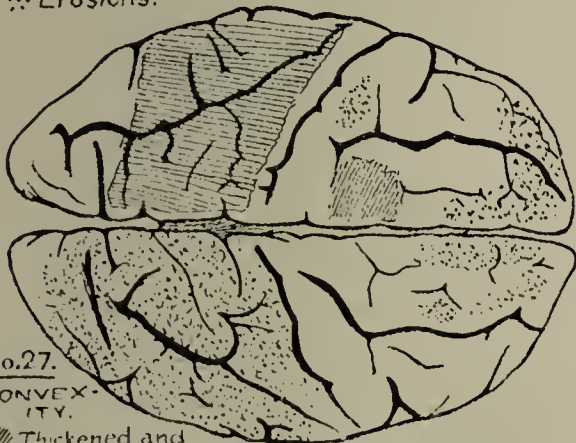


No. 9
Showing
flattening of inferior
surface of frontal lobes, with area of destruction.



No. 27.
Base
showing area
of erosion.

✧ Erosions.



No. 27.
CONVEX-
ITY.
Thickened and
opaque arachnoid. Extensive destruction
of temporal lobes.



No. 27.
Adhesions of
frontal lobes to
each other on median surface.

PLATE I

Fourteen Cases of General Paralysis.

No. 8.* *Head*, calvaria thick; vessels of pia injected; arachnoid infiltrated, distended with serum; punctate, disseminated cortico-meningeal adhesions; *lungs*, hypostatic congestion; few, disseminated, calcareous tubercles on pleura; slight pleuritic adhesions; *heart*, walls softened; *peritoneum* tense and distended; contained clear urine; *bowels* dark colored; mesenteric vessels injected; *liver*, abnormally friable; two cicatrices on surface; *bladder*, walls thin; upon fundus rupture size of finger, edges brittle and rough.

No. 27. *Head*, calvaria thick; diploe thin, cancellous tissue indistinct; dura tough, thick; extensive, adherent pacchionian growth forward; *brain* 37 ozs.; arachnoid thick, opaque especially along vessels; pia adhesive with cortical softening underneath (see ill. 27 Pl. I); serum 12 fld. ozs.; basal ganglia and septum pellucidum roughened by granular ependyma; olfactory nerves and bulbs attenuated, softened. Points of rare interest were: (1) large areas of softening and adhesion; with immunity of other cerebral regions; (2) attenuated membranes at points of adhesion, with little adhesion under thickened membranes; (3) persistence of adhesion in depth of sulci and not limited to free surface only of convolutions.

No. 30. *Head*, calvaria thick; dura thick, spots of adhesion to pia; *brain* 50 ozs.; pia, thick, opaque; membranes between frontal lobes firmly adherent (brain hardened with pia on for gross specimen); *lungs*, congested; left lower lobe solidified; *heart* $13\frac{1}{2}$ ozs.; left ventricle walls hypertrophied, *liver* 60 ozs.; *spleen* 3 ozs.; *kidneys* $4\frac{1}{4}$, $4\frac{1}{2}$ ozs.; cysts on surface of right.

No. 38. Calvaria thick, except temporal; dura and pia thickened; pia adhesions general; erosions on all convolutions on vertex; cerebro-spinal fluid increased; cortex softened, adherent (see ill. Pl. VIII, Fig. 2).

No. 42. Dura thickened; pia bathed with pus; *brain* 45 ozs.; pia opaque, thick, adherent; cortex soft; erosions general; *heart* 13 ozs.; *liver* 68 ozs.; *spleen* $7\frac{3}{4}$ ozs.; *kidneys* 7, $7\frac{3}{4}$ ozs.; large, congested, smooth; capsules adherent; cortices thickened, markings indistinct.

No. 56. Calvaria thin; dura thick, adherent; *brain* 48 ozs.; pia very thick especially over vertex but no adhesions on vertex; pia adhesions and erosions marked on left lateral surface and base; temporo-sphenoidal conv., left, soft, disintegrated; right, softening involved inf. front. conv., temporo-sphen. conv.; *arteries* had scattered patches.

No. 62. Dura firmly adherent; *brain* $44\frac{1}{2}$ ozs.; thick and opaque pia general over vertex; vascularity in sulci increased; marked increase

* The numbers refer to the number of the autopsy.

in cerebro-spinal fluid; atrophy of conv. very marked; adhesions, erosions, chiefly over frontal lobes and on left side; basal erosions (ill. 62, Pl. II); arterial walls uneven; circle of Willis irregular (ill. 62, Pl. II).

No. 64. Dura adherent; serum 4 fld. oz.; pia, thick, opaque. but no adhesions or erosions; arterial walls thick and tough; punctate appearance of cortex after stripping without erosions; *heart* $10\frac{1}{2}$ ozs.; coronary vessels thick, tortuous; mitral thick, opaque but competent; aortic arch thickened and tough; *liver* 39 ozs.; surface mottled; *spleen* $3\frac{1}{2}$ ozs.; *kidneys*, $44\frac{1}{2}$ ozs.

No. 67. Calvaria thick, eburnated; dura in vault firmly adherent; serum 4 fld. ozs.; *brain* 43 ozs.; opaque spots in arachnoid and along vessels; pia attenuated, anæmic; cortical adhesions, erosions in Rolandic regions; basal surface frontal lobes (see ill. 67, Pl. II); frontal lobes agglutinated; cortex soft, little atrophy; *lungs*, œdematous; pericardium adhered to pleura; encapsulated, gangrenous sac in left upper lobe; *heart* $7\frac{1}{2}$ ozs.; valvular edges thickened; *liver* $37\frac{1}{2}$ ozs.; surfaces cicatricial; *spleen* $4\frac{1}{2}$ ozs.; two square inches of capsule, thick, tough, shiny, bright yellow; *kidneys* $4\frac{1}{2}$, $4\frac{1}{4}$ ozs.; capsules adherent, thickened; left kidney anomalous, pelvis on side; *uterus*, spherical, sub-peritoneal myoma, size of hen's egg, attached to fundus by small pedicle.

No. 69. Calvaria thick, cancellated; dura slightly adherent; *brain* 49 ozs.; thin blanket of fibrin over pia; pia over vertex adherent but erosions limited; congestion general; arterial walls thickened.

No. 71. Dura firmly adherent; *brain* 43 ozs.; pia thick, opaque; general adhesion, erosion; cerebro-spinal fluid increased; cortex soft but atrophy slight; *lungs*, œdematous; pleuritic adhesions; *liver* 44 ozs.; fatty, soft; *heart* 12 ozs.; rather soft; *kidneys* 4, 4 ozs.

No. 78. *Brain* 51 ozs.; intra-cranial pressure marked; pia adherent in patches chiefly right frontal; erosions slight; two gummata in r. Sylvian fissure; cortical softening Reil; *lungs* congested; pleuritic adhesions; scattered tubercles general; *heart* 12 ozs.; aortic valves thick, incompetent; *spleen* $5\frac{1}{2}$ ozs.; softened; *kidneys* $4\frac{1}{2}$, $4\frac{1}{2}$ ozs.

No. 81. Calvaria very thin; cerebro-spinal fluid increased; *brain* $56\frac{1}{2}$ ozs.; vertical membranes opaque but no adhesions or erosions; cortex soft, no apparent atrophy; puncta vasculosa marked; marked congestion of inf. parietal lobule on both sides; mic. ex. to be made; *heart* $10\frac{1}{2}$ ozs.; *liver* $44\frac{1}{2}$ ozs.; congested, dark; *kidneys* 4, 4 ozs.; congested.

No. 99. Calvaria irregularly thickened; diploë thin, dense; *dura* thick, adherent; *brain* $53\frac{1}{2}$ ozs.; spicula of bone in falx cerebri; pia vessels increased and dilated; eroded patches over vertex anterior to

Rolandic fissure (see ill. Pl. V); basal surface fron. lobes cortex soft and adherent to membranes; cerebrum generally softened, general vascularity increased; two old extravasations in centrum ovale; lateral ventricles dilated, filled with serum; ependyma smooth.

Epilepsy, Four Cases.

No. 17. Pia-arach. thickened with opaque patches; arterioles firm, resisting; *lungs* both apices adherent; *heart* l. hypertrophy without dilatation; *liver* congested; *kidneys* small, capsule adherent, cortex thin, definition indistinct.

No. 31. *Brain* $37\frac{1}{2}$ ozs.; serum increased; convolitional atrophy marked; arteries tough, thickened; small cyst in each post. centrum ovale; *lungs* r. increase of connective tissue like fibrous bands, cicatrices in apex of l.; apical adhesions to parietes; lower lobe firmly adherent; *heart* $9\frac{1}{2}$ ozs., l. vent. hypertrophied, mitral thickened; ulceration of r. auricular wall extending through pericard. into diaphragm; bi-cusp. thickened soft; a few plates of fibroid on it; *liver* 29 ozs.; *spleen* $2\frac{1}{2}$ ozs.; *kidneys* 4, 4 ozs., congested.

No. 85. *Brain* 51 ozs.; pia-arach. thick opaque along medium line; l. ascending parietal convol. disintegrated, soft, due to hæmorrhage; *heart* $9\frac{1}{2}$ ozs.; *liver* 46 ozs.; *spleen* $4\frac{1}{2}$ ozs.; *kidneys* $6\frac{3}{4}$, $6\frac{1}{4}$ ozs.

No. 96. *Brain* 45 ozs.; dura pale, dry; dura formed roof for cavity in r. upper parietal conv. which upon removal allowed discharge $3\frac{1}{2}$ fld. ozs. dark, bloody fluid; pia-arach. over this spot destroyed; pia-arach. adhesions general; no erosion; cyst mentioned extended from cortex to lateral vent. separated only by thin septum; cavity irregular, brownish; *heart* 8 ozs.; *liver* 44 ozs.; *spleen* 5 ozs.; *kidneys* $5\frac{1}{2}$, 5 ozs.; l. *lung* very, r. slightly œdematous.

Imbecility, Two Cases.

No. 45. *Brain* 45 ozs.; fissures deep and gaping; l. fissure of Rolando extended beyond margin of long. fissure, bisecting paracentral lobule; *heart* 13 ozs.; pericardium adherent on all sides; hypertrophied, dilated; *lungs* r. pleural adhesion; l. small consolidated, broken down mass; pleural cavity contains two pts. thick creamy blood streaked pus; *stomach*, dilated, walls attenuated; *liver*, mottled, structure firm; l. lobe adherent to diaphragm and spleen; *spleen* enlarged; blood flowed freely from all cut tissues and coagulated slowly.

No. 77. Head. *Brain* 43 ozs.; dura adherent to calvaria and membranes; dura greatly thickened; *heart* 8 ozs., mitral valves thickened

but competent ; *lungs* congested ; *liver* 31 ozs., congested ; *gall bladder* contained several calculi ; *spleen* 3 ozs. ; *kidneys* $3\frac{1}{2}$, 3 ozs. ; *uterus*, 3 small fibrous tumors.

Not Insane, One Case.

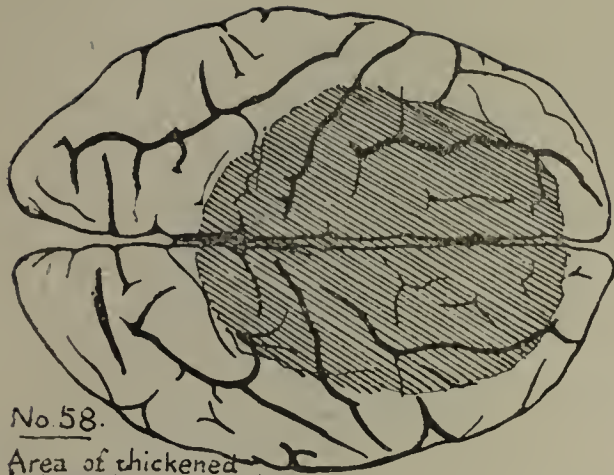
No. 70. Head. *Brain* 45 ozs., firm, outlines distinct ; puncta vasculosa few ; *heart* 7 ozs. ; pericardium contained 4 fld. ozs. pale, clear yellow serum ; *lungs*, r. enlarged, solidified, firmly attached on all sides ; *liver* 52 ozs. ; dark, studded with firm beaded nodules ; *gall bladder* distended ; *spleen* 8 ozs., dark, enlarged, softened, nodulated like liver ; *kidneys* 5, 6 ozs., enlarged ; capsules not adherent ; *mesentery* and *intestines* studded with enlarged glands ; post peritoneal glands along lumbar vertebræ formed thick solid mass 1 in. thick, 6 in. long, 3 in. wide ; 1 or 2 small purulent cysts in this.

Acute Mania, Ten Cases.

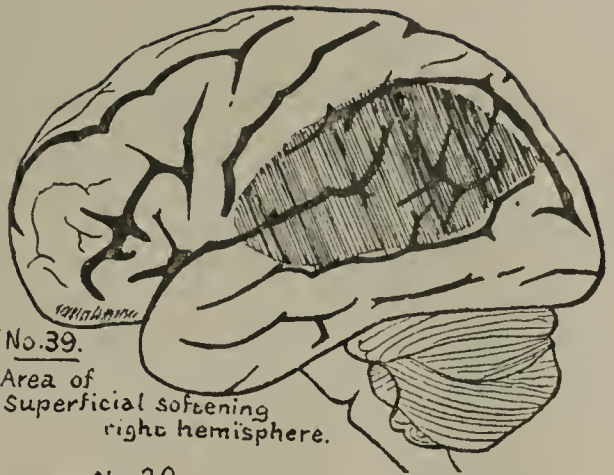
No. 29. *Brain* 46 ozs. ; meninges injected ; intra-cranial pressure very marked ; r. crus cerebri and adjacent half of pons softened, degenerated ; small cavity in medulla adjoining fourth ventricle (see ill. 29, Pl. II) ; clot continuous throughout all ventricles ; walls of left lat. vent. disorganized ; apoplectic cyst in r. angular gyrus ; center of r. optic thalamus softened ; contracted and rough walled cyst $2\frac{1}{2}$ in. long in r. centrum ovale ; *heart* $13\frac{3}{4}$ ozs. ; l. vent. wall 1 in. thick ; calcareous plate in aortic cusp ; thickened patches in arch ; *liver* 52 ozs. ; *spleen* $4\frac{1}{2}$ ozs. ; *kidneys* $4\frac{1}{4}$, 4 ozs. ; two fibroid tumors $\frac{3}{4}$ in. diam. attached to uterus ; one interstitial, the other pediculated.

No. 43. *Brain* 49 ozs. ; membranes and brain substance deeply congested ; indenting the second l. front. con. at lower end of prae--fron. fissure was psammomatous tumor attached to dura size of hazel nut ; arterioles generally thickened and resisting with dilated perivascular spaces ; *heart* $10\frac{1}{2}$ ozs. ; serum under visceral pericardium ; l. vent. irregularly hypertrophied with thin apex walls ; muscle dark, soft, degenerated ; *liver* tough, creaking, slight capsular attachment ; *spleen* $5\frac{3}{4}$ ozs., mottled, softened ; *kidneys* $6\frac{3}{4}$, 6 ozs. softened, deep purplish red interior, definition destroyed ; capsules adherent removing cortex.

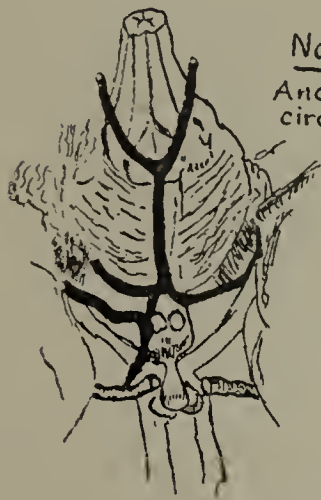
No. 58. *Brain* 56 ozs. ; calvaria thickened ; dura adhered in patches ; over vertex membranes very thick and opaque ; (see ill. Pl. II) ; no adhesions ; great increase in vascularity ; serum abundant ; convolitional atrophy marked ; arterioles rigid, tough ; thickened patches on basal arteries ; crura cerebri softened ; surfaces of r. ependyma adhered ; *lungs*, l. pleura adherent throughout ; lower lobe red hepatiz., changing



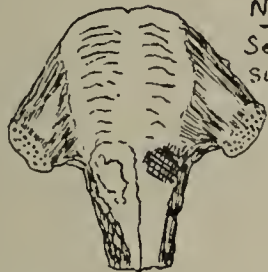
No. 58.
Area of thickened
pia and arachnoid.



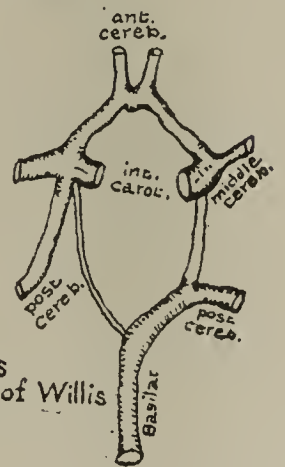
No. 39.
Area of
superficial softening
right hemisphere.



No. 28.
Anomalous
circle of Willis.



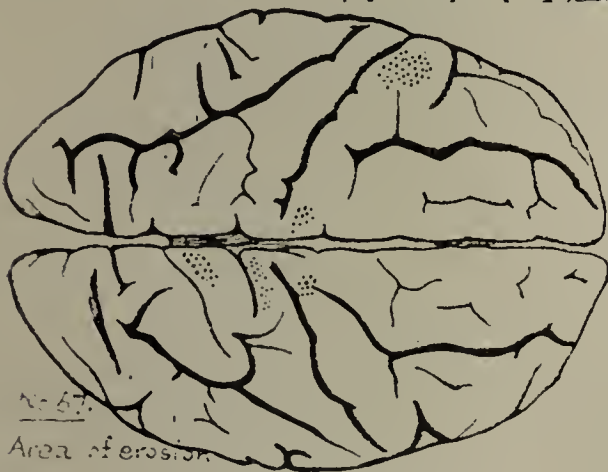
No. 29.
Section thro' under
surface of Pons
showing location
of recent hemorrhage.



No. 62.
Anomalous
circle of Willis



No. 62.
Showing erosions



No. 67.
Area of erosion.



No. 67
Erosions.

PLATE II.

gray; r. pleural adhesions few; lower part upper lobe gray hepatization; lower lobe consolidated by hypostatic pneumonia; *heart* $20\frac{1}{2}$ ozs.; hypertrophy of l. vent. walls; int. aortic surface had rough nodules; *liver* 66 ozs.; yellow areas on surface; *spleen* 6 ozs.; congested; *kidneys* 9, 7 ozs.; capsules slightly adherent, surfaces roughened, cortices thin, interior definition distinct in right, indistinct in left.

No. 60. *Head* not examined; *thorax* resembling "paralytic" chest; recent pleural adhesions; excessive serum in l. cavity; l. lung, lower lobe consolidated and spots of acute softening; lobules throughout both lungs congested and consolidated; *heart* 8 ozs.; *spleen* 8 ozs. soft, pale; *intestines*, amyloid in gross appearance; *kidneys* $4\frac{1}{2}$, 5 ozs.; irregular patches of adhesion, pale, cortical tissue increased; pyramids indistinct, irregular.

No. 61. *Brain* 46 ozs.; calvaria dense; calcareous plate $\frac{3}{4}$ in. long, $\frac{1}{4}$ in. wide over longitudinal sinus; intra-cranial pressure marked; pia congested, attenuated; puncta vasculosa marked; serum 4 fld. ozs.; *heart* 6 ozs.; walls contracted and rigid; edges of mitral valve roughened, surface pink; endocardial inflammation invaded l. auricle; *lungs* œdematous and congested; foci of hæmorrhagic extravasation; *liver* 45 ozs.; *spleen* 5 ozs. irregularly congested and friable with some extravasation; *kidneys* $3\frac{1}{2}$, $4\frac{1}{2}$ ozs.; capsules slightly adherent; extravasation in substance of r. kidney; stomach and bowels distended and deeply colored; in walls of small intestines numerous, black extravasation between the coats; into its lumen projected tumefied and softened villi and follicles in folds containing minute bubbles of air in abundance; intestines contained digested blood; no extravasations in bladder; small cyst in r. ovary.

No. 74. *Brain* 49 ozs.; dura firmly adherent; pia adherent over left motor area, cortex underneath softened; opaque patches on basal arteries; thrombus in l. sylvian artery, accounting for disintegration (see ill. 75, Pl. IV); *heart* $9\frac{1}{2}$ ozs.; *liver* 62 ozs.; soft, friable; gall bladder atrophied, adherent filled with gall stones; *pancreas* $7\frac{1}{2}$ ozs.; nodular, glandular largely replaced by fibrous tissue; *spleen* 7 ozs.; friable; kidneys 6, 3 ozs.; r. nodular with patches of congestion; l. changed to a cyst with thick fibrous capsule.

No. 75. *Head* not examined. Autopsy 7 hours after death, blood fluid; *lungs* œdematous, discolored patches covered pleural surfaces; *heart* 9 ozs.; punctate atheroma in aortic lining near origin; *spleen* 9 ozs.; *kidneys* 6, 5 ozs.; vascularity of abdominal organs increased.

No. 88. Calvaria thick, dense; *brain* 34 ozs.; serum 5 fld. ozs.; pia-arach. thickened and opaque in patches; sub-arach. serum; cortex soft, clinging to membrane; erosion extensive over fron. and occipital

lobes and upon medium surface (see ill. 87, Pl. III); adhesions extended into sulci; frontal lobes agglutinated; tips of temporal lobes soft, degenerated; basal arterial walls few opaque patches; marked depression medium border longitudinal sinus; brain substance pale, anæmic; *lungs* œdematous; small cicatrix apex r. lung; *heart* 8 ozs.; *liver* 64 ozs.; *spleen* $5\frac{1}{2}$ ozs.; *kidneys* $3\frac{1}{2}$, $4\frac{1}{2}$ ozs., *ovaries* atrophied, uterine fundus enlarged two diams. by hyperplasia.

No. 94. Dura adherent; *brain* 52 ozs.; cerebro-spinal fluid increased; pia-arach. thick, opaque; cortex adherent to membrane; adhesions extending into sulci; both temp-spheroidal soft, disorganized (see ill. 93, Pl. V); puncta-vasculosa marked; calcareous plates and atheroma in basal arteries; no occlusion; *heart* 13 ozs.; hypertrophied, cusps of mitral, tough, thick but competent; left endocardium red, without patches; heart muscles softened; *kidneys* 5, $6\frac{1}{2}$ ozs.; spots of adherent capsule.

No. 98. *Brain* 41 ozs.; serum slight; no adhesions of dura, of pia-arach.; pia vessels engorged, with boundaries of opacity; choroid plexuses engorged, contained large serous cysts; consistency of brain soft; reddish discoloration of lat. vent.; extravasation along arborescent vessels; no focal lesions; *lungs* œdematous; increase of fibroid and tubercle in apices; l. bound firmly to parietes post. and lat.; *heart* $7\frac{1}{4}$ ozs.; *stomach* dilated; *liver* 42 ozs.; *spleen* $7\frac{1}{2}$ ozs.; blue-black; supernumary spleen near hilum; *kidneys* 5, $4\frac{3}{4}$ ozs., pale, capsule adherent, definition marked; uterine cavity contained vascular membrane easily detached.

Chronic Mania, Eleven Cases.

No. 6. *Head*, calvaria dense; pia engorged; root of third nerve softened; serum 2 ozs.; anomalous arterial distribution from basilar; pineal gland enlarged; upper third of pons spot of softening involving pyramidal tracts one-half of transverse diam. of pons; third ventricle presented areas of softening involving geniculate bodies; it indicated an old lesion; bloodvessels free. The pigmentation, the absence of hemorrhagic spots, the healthy condition of the heart and arteries indicated a primary lesion of pigmentary degeneration and a secondary stasis with softening.

No. 22. *Head* not examined; *heart* small; aortic valves attenuated, but competent; *intestines* distended; mucous coat reddened and engorged; solitary and agminated follicles enlarged; near cæcum mucous membrane atrophied; all membranes bathed in pus.

No. 36. *Head* not examined; *thorax* and abdominal cavity distended with serum; r. *lung* collapsed; *heart* 14 ozs.; auricles dilated; some dilatation with hypertrophy of ventricles; *liver* 60 ozs.; edges thick, rounded; *spleen* 15 ozs.; firm and resisting; intestines œdematous; *kidneys* 7, $7\frac{1}{4}$ ozs.; interstitial *uterine* fibroid; *ovaries* enlarged.

No. 41. *Head*, calvaria thick and dense; dura slightly adherent; brain 43 ozs.; pia stripped easily; *brain* hardened for gross specimen; *pleura* filled with serum, no adhesion; *heart* $14\frac{1}{2}$ ozs.; hypertrophied; crimson discoloration throughout all lining of heart and vessels; surfaces roughened and clots adhered to them; valves thickened; intima thickened and injected; *intestines* dark, softened and partially decomposed; *spleen* $5\frac{1}{8}$ ozs., soft, friable; *kidneys* 6, $4\frac{1}{4}$ ozs.; l. kidney contracted, slightly nodular; capsule slightly adherent; pus cavities opening into hilum; pyramids indistinct; r. kidney enlarged, surface pale yellow, capsule slightly adherent, cortex increased, pyramids striated, irregular in outline but no excavation.

No. 49. *Head* not examined; r. *lung*, adherent, middle lobe red hepatized; upper lobe still farther advanced; l. lung, tubercular cicatrix at apex; *heart*, 15 ozs.; displaced toward right and left ventricle hypertrophied; pericardium, serum, 1 oz.; *liver*, 47 ozs.; *spleen*, $4\frac{1}{2}$ ozs.; *kidneys*, $4\frac{1}{4}$, 5 ozs.; slight interstitial change; head of r. femur presented bony union after fracture.

No. 53. *Abdomen*; neoplasm, 7 in. diam., occupied cavity adhered to parietes, and involved intestines; interstices filled with yellow opaque fluid; *liver* was large, adhered to diaphragm and adjacent viscera; superficially invaded by cancerous growth; r. *kidney* adherent to diaphragm and liver; *uterus* invaded by growth; *spleen* disorganized.

No. 54. *Brain* $49\frac{1}{4}$ ozs.; dura firmly adherent; pia-arach. thick; opaque over vertex; no adhesions or erosions; brain and membranes engorged; arterial walls spotted with thick, yellow patches; small clot beneath pia under left cerebellar peduncle; arterioles tough, resisting; *lungs*, lower lobes congested and œdematous; *heart* $12\frac{1}{2}$ ozs.; aortic valves thickened; thick, irregular patches in aorta; *liver* 40 ozs.; yellowish patches on surface; *spleen* $1\frac{3}{4}$ ozs.; *kidneys* 4, 4 ozs.; congested and definition indistinct.

No. 65. *Head*, calvaria thick, eburnated; dura slightly adherent; *brain* 36 ozs.; arach. opaque along vessels; cortex dark; corpus callosum softened; brain engorged; basal arteries atheromatous of irregular diam.; fusiform aneurisms; well marked pouches in middle cerebral; tough thrombi in several branches of sylvian; *heart* 12 ozs.;

r. vent. adherent to peric.; *liver* 68 ozs.; *spleen* 1 oz.; *kidneys* $3\frac{3}{4}$, 5 ozs.; liver friable and disintegrated by a stream of water.

No. 73. *Head*, calvaria very thick throughout; dura thick and adherent; *brain* 52 ozs.; marked atheroma of basal arteries; pleuræ generally adherent; *heart* 27 ozs.; calcareous deposits in aortic and mitral; large excrescence under aortic; l. vent. walls enormously thick; *liver* 74 ozs.; fatty change; *spleen* 11 ozs.; *kidneys* 8, 6 ozs.; capsules thickened, but not adherent; serous cysts under capsule surfaces nodular; mottled, with abundant points of stellate vascularity; cortex atrophied, pale; definition indistinct.

No. 86. *Head* not examined; *lungs*, old pleuritic adhesions; l. lung, red hepatized in two lower lobes; *heart* 12 ozs.; filled with clots; aortic, semi-lunar valves thickened but competent; peric. adhered to pleura; *liver* $37\frac{1}{2}$ ozs.; large gall stones; *spleen* $1\frac{1}{2}$ ozs.; *kidneys* $1\frac{1}{2}$, 1 ozs.; advanced interstitial change; capsules adherent.

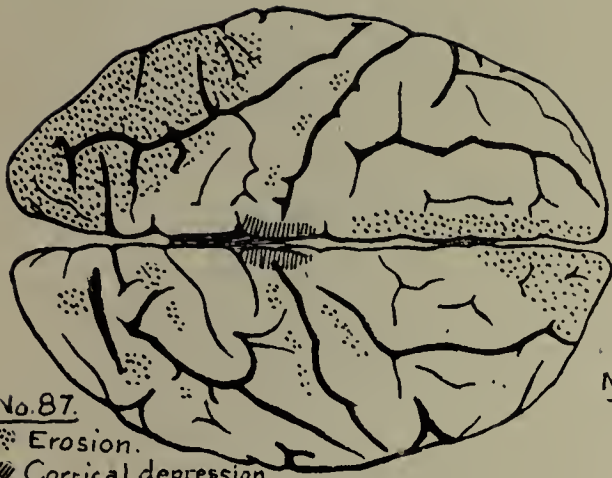
No. 92. *Head*, dura deeply engorged without adhesion; pockets of fluid blood underneath parietal dura; pia-arach. thick, opaque, along median line and larger vessels; arterial sclerosis of basal and larger cortical arteries; brain intensely engorged and substance softened; inter-peduncular spaces disorganized; r. cerebellum congested and softened; r. pleura bound by old adhesion; *heart* $5\frac{3}{4}$ ozs.; *liver* 38 ozs.; *spleen* 2 ozs.; *kidneys* $4\frac{1}{2}$, $3\frac{3}{4}$ ozs.; r. presented a superficial cyst.; dermoid, hen's egg size, containing light hair, in right *ovary*.

Acute Melancholia, Seven Cases.

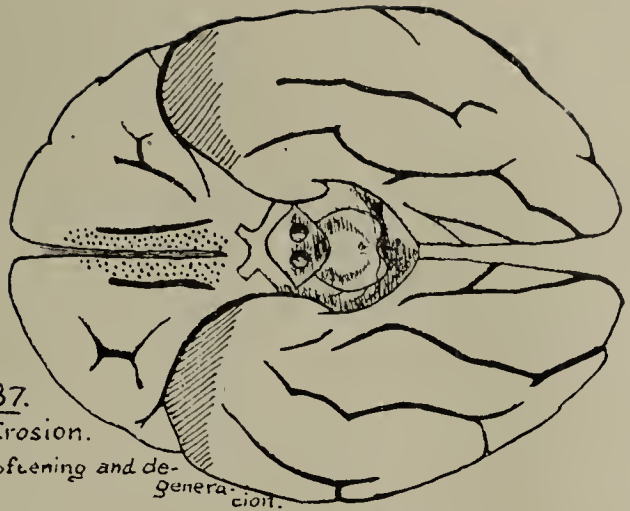
No. 1. Dura slightly adherent over right hemisphere; vertical membranes thickened and opaque with underlying serum; atheromatous patches in pia vessels; also in basal vessels; r. ent. car. especially thick, hard, contracted, misshapen; one of the branches of left sylvian artery had sacculated aneurism of 4 diameters; many serous cysts in choroid plexus; brain substance congested; *lungs*, pleural adhesions general; *heart*, l. vent. hypertrophied concentrically; mitral thickened; aortic arch thin, dilated; three atherom. patches; *kidneys* enlarged, structure indistinct; l. surface irregularly contracted; several small cysts.

No. 13. Body muscular, well nourished with an abundance of fat; dura tough, thick, free from adhesions; intra-cranial pressure marked; no naked eye lesions; *lungs* small, cicatrical contractions in apices; *heart*, pericardial serum abundant; l. vent. hypertrophied; *liver* slightly enlarged and tough cut surface grating; *spleen* large, friable; *kidneys*, capsules slightly adherent; parietal adhesions of r. iliac viscera.

No. 14. *Dura* thick, dense; dura pia adhesions along commissure; membranes congested; *arach.* thick, opaque along vessels; small menin-



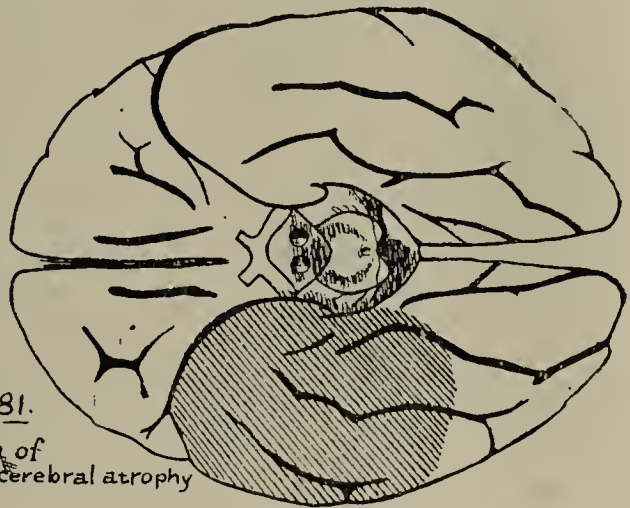
No. 87.
 Erosion.
 Cortical depression.



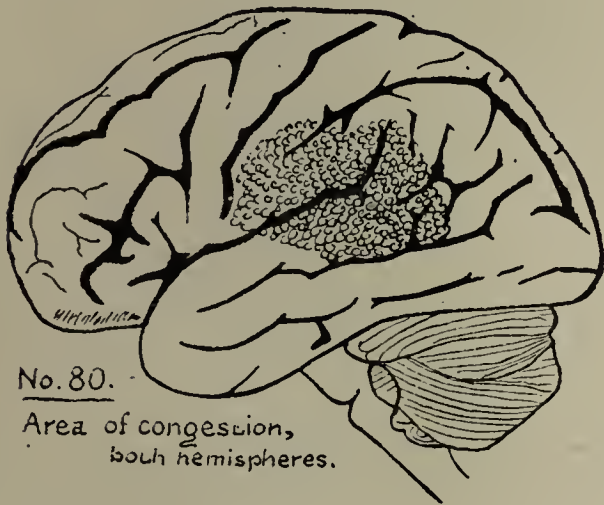
No. 87.
 Erosion.
 Softening and de-
 generation.



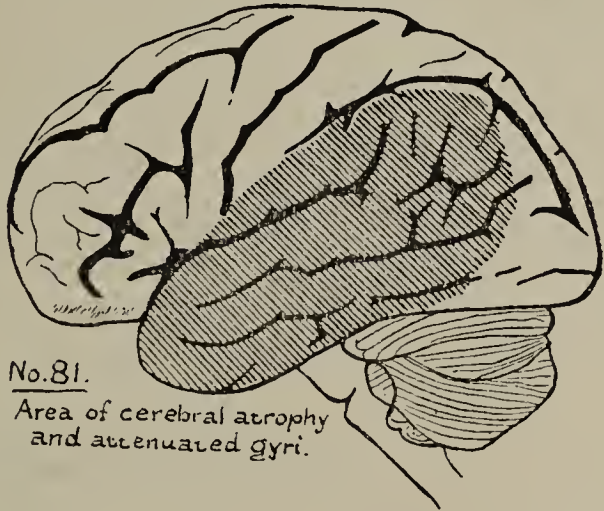
No. 87.
 Erosion.



No. 81.
 Area of
 cerebral atrophy



No. 80.
 Area of congestion,
 both hemispheres.



No. 81.
 Area of cerebral atrophy
 and attenuated gyri.

PLATE III.

geal hæmorrhage over l. gyrus angularis; optic thalmi softened; *heart*, aortic and bi-cus. valves thick and edges eroded; *peritoneal cavity*, small quantity of clear serum; fine cobweb adhesions; *liver* fatty; *spleen* enlarged, soft, friable; *kidneys*, l. contained small pocket of pus; capsules adherent; cortex thin, markings indistinct; *bladder* walls unusually thick; perforating ulcer at fundus with peritoneal adhesions.

No. 37. *Calvaria* thin; *brain* $47\frac{1}{2}$ ozs.; membranes thickened and opaque in patches and along vessels; cortex markedly softened and friable; spinal cord level of tenth dorsal l. post. column softened with degeneration below it; *heart* $5\frac{1}{8}$ ozs.; *spleen* $1\frac{3}{4}$ ozs.; congested; *kidneys* $3\frac{1}{4}$, $3\frac{3}{4}$ ozs.; anomalous shape, thin elongated.

No. 63. *Brain* 42 ozs.; *calvaria* dense, thickened; serum 4 fl. ozs.; *pacchioni*, soft gelatinous; areas of congestion over stripped vertical cortex; arterioles tough, resisting; *lungs* œdematous; *heart* 5 ozs.; semi-l. valves attenuated, fenestrated; l. vent. surface had opacity $\frac{1}{2}$ in. diam.; *liver* $23\frac{1}{2}$ ozs.; dark; *spleen* 3 ozs.; *kidneys* $2\frac{1}{2}$, 3 ozs.; capsules thick, tough, very adherent, bringing away cortex; supra-renal capsules enlarged $1\frac{1}{2}$ in. by 1 in., consisting thickened walls with cavity contained brown, soft, disorganized material.

No. 89. *Head* not examined; tissues jaundiced; *liver* 46 oz.; *gall bladder* firmly adherent to liver, extending 1 in. beyond its free surface; walls attenuated; distended and tense, attenuated walls containing viscid bile, two gall stones $\frac{3}{4}$ in. diam.; *spleen* $9\frac{1}{4}$ ozs. lobulated, irregular.

No. 100. *Head* not examined; right pleura firmly adherent; increase of fibrous tissue in r. lung and scattered miliary tubercles in upper lobe; apex l. lung consolidated with tubercles and several small cavities; pus in bronchi; small areas consolidation in lower lobe; *heart* $6\frac{3}{4}$ ozs.; aortic valves thickened; *liver* 34 ozs.; *kidneys* $3\frac{1}{2}$, 4 ozs.; peyer's patches ulcerated with thick elevated edges, excavated centers, largest being $1\frac{1}{2}$ in. diam. mesenteric glands enlarged.

Chronic Melancholia, Four Cases.

No. 2. *Spinal column* only examined; r. lamina of atlas chipped on upper aspect; odontoid process separated from body of axis by fracture at base; fractured surfaces comminuted.

No. 33. *Head* not examined; upon opening abdomen liver protruded prominently; l. lobe enlarged, studded with white nodules; r. lobe anæmic; edge rounded, ill defined; carcinomatous foci of liver, broken down, almost liquid; *intestines*, white, waxy; *kidneys* $3\frac{1}{2}$, 4 ozs. anæmic, slightly contracted; capsules stripped easily but left rough, torn cortex; *spleen* enlarged; anæmia of thoracic tissues; *heart*, pale,

softened, edges mitral valve thickened; calcareous vegetation on one aortic cusp.

No. 51. *Brain* 46 ozs.; pia covering fron. lobe dull, white, dense, obscuring convolutions; apex l. fron. lobe a calcareous plate size of quarter dollar; thickened pia adherent on l. side in sulci and on gyri; on r. side only at apices of gyri; *heart* 12½ ozs.; thickening of mitral valves; *lungs*, l. at apex cicatrix, lower lobe congested; two upper r. lobes congested; *liver*, 81½ ozs.; congested, soft; *spleen* 14½ ozs., congested, soft; *kidneys* 5¾, 5¾ ozs.; acute inflammation.

No. 72. *Head* not examined; *lungs* apices both adhered; l. apex consolidated; lung tissue infiltrated, softened; in terminal bronchioles thick, creamy deposit which showed abundance tubercle bacilli; *heart* 6 ozs., two aortic cusps fenestrated; fibrinous clots in ventricles; *liver* 39 ozs., attached to parietes and diaphragm; *gall bladder* contracted over nodular gall stones; *spleen*, 3 ozs.; *kidneys* 4, 3½ ozs., contracted, pale, capsules adherent; *uterus*, fibroid in structure; tubes filled with pus; supra-renal capsules 3, 2 ozs.

No. 77. *Head*. *Brain* 43 ozs.; dura adherent to calvaria and membranes; dura greatly thickened; *heart* 8 ozs.; mitral valves thickened but competent; *lungs* congested; *liver* 31 ozs., congested; *gall bladder* contained several calculi; *spleen* 3 ozs.; *kidneys* 3½, 3 ozs.; *uterus*, three small fibroid tumors,

Not Insane, One Case.

No. 70. *Head*. *Brain* 45 ozs.; firm outlines distinct; puncta vasculosa few; *heart* 7 ozs.; pericardium contained 4 fld. ozs. pale, clear yellow serum; *lungs*, r. enlarged, solidified, firmly attached on all sides; *liver* 52 ozs.; dark, studded with firm beaded nodules; *gall bladder* distended; *spleen* 8 ozs., dark, enlarged, softened, nodulated like liver; *kidneys* 5, 6 ozs.; enlarged; capsules not adherent; *mesentery* and *intestines* studded with enlarged glands; post-peritoneal glands along lumbar vertebræ formed thick solid mass 1 in. thick, 6 in. long, 3 in. wide; one or two small purulent cysts in this.

Terminal Dementia, Twenty-five Cases.

No. 3. *Head* and *heart* only examined. Calvaria thick, compact; dura thick and discolored; slightly adherent to calvaria; the convols. were slightly atrophied in the frontal and parietal regions; patches of yellow atheroma in the basilar and sylvian arteries; choroid plexus contained minute serous cysts and calcareous deposits; *heart*, flabby, muscular tissue yellowish color; deposits of fat all through the organ, cavities collapsed; coronary arteries atheromatous.

No. 11. Discoloration of first two cervical vertebræ; Only vertebral column examined; head deviated to left side; several small contused wounds on upper part of dorsal region.

No. 16. *Head* only examined; contused and lacerated wound of scalp over right parietal bone; right ear much contused; irregular fissure fracture of parietal bone; dura adherent; cerebrum filled by large clots; irregular fissured fracture in squamous bone inwards and forwards along petrous bone to its inner extremities; posterior clinoid processes completely fractured; brain softened and lacerated; arteries of base atheromatous.

No. 19. Head, *brain*, dura thick, opaque; cortex congested; anterior lobes not well developed; *thorax* 8 ozs., serous effusion, upon which a small quantity of free pus floated; r. pleura thickened; *lungs*, r. upper lobe compressed, non-crepitant, hepatized, contained abscess cavity capable of holding 1 oz. fluid; lung tissue was engorged, granular and surrounding the abscess somewhat friable; also abscess cavity in l.; *heart* in good condition; *stomach* and *intestines* much distended; *kidneys*, capsules adherent, cortex thin and pale.

No. 20. Head; *brain*, dura adherent to calvaria; pia and arach. thick, congested; blood vessels atheromatous, especially at base; brain tissue soft, atrophied; *heart*, aortic valve thickened; *intestines* congested, matted together by recent adhesion; in r. inguinal region portion of intestine gangrenous; *kidneys*, capsules non-adherent; *liver* adherent to intestines on under side, softened, engorged with blood.

No. 21. *Head* not examined; *lungs*, hypostatic congestion; *heart*, empty, collapsed, friable; *intestines*, marked enteritis of smaller intestine; mesenteric glands swollen; at an inch and a half above cæcum was found an intestinal perforation; the perforation was found to have occurred in a typhoid ulcer half an inch in diameter; *spleen*, enlarged, engorged and friable; *liver* enlarged and softened.

No. 23. *Head* not examined; *lungs*, adhesions general, white tubercles on surface; lung tissue hyperæmic, firm, studded with caseous nodules, especially at apices; pleura thickened; *intestines* distended; *omentum* and *mesentery* much thickened, the former was transformed into a thick, hard, nodulated mass; tubercles and caseous masses on peritoneum; *liver* traversed by bands of fibrous tissue containing small gray tubercles; *kidneys* enlarged, capsules non-adherent, mucous membrane infiltrated, thickened and gray; scattered through cortex were small tubercles; *spleen* enlarged, held down by fibrous bands, small tubercles could be seen all through the substance.

No. 25. *Head*, calvaria usual thickness but dense; dura pale lusterless, thickened; over the region of vertex firm adhesions to sub-

jacent structures; *intestines* congested, thickened, evidence of recent catarrhal process; *kidneys*, $3\frac{1}{2}$, $3\frac{3}{4}$ ozs., hydronephrosis and chronic nephritis; *bladder* thickened, contracted; *heart* 9 ozs.; small beginning fatty change in muscular substance; *liver* 35 ozs.; *spleen* 3 ozs.; *lungs* l. near apex small tubercular nodules.

No. 26. Head. *Brain* 46 ozs.; calvaria thick; strong adhesions of dura to calvaria; dura and pia congested over the convexity, but not thickened; greater part l. fron. lobe near tip retracted and flattened; convols. narrow, shallow; inferior in development to those of opposite hemisphere; *lungs* were not removed; *heart*, firm, 6 ozs.; valves delicate and competent; *intestines*, rectum and sigmoid flexure distended forming an enormous pouch 1 foot long, $4\frac{1}{2}$ in. diam.; the walls thickened, darkened, discolored and traversed by tough glistening bands of fibrous tissue; above the sigmoid flexure the coils of the colon were irregularly distended by gas and attenuated. Examination of lower end of rectum failed to reveal organic malignant disease; peritoneal cavity dry and sticky; walls of intestine were agglutinated, but not by organized adhesions; *stomach* distended by fluid; *liver* 30 ozs.; soft, dark; *spleen* $2\frac{1}{2}$ ozs.; *gall bladder* contained two gall stones; *kidneys* $4\frac{1}{2}$, 5 ozs.

No. 32. Head. *Brain* 39 ozs.; dura roughened, adherent to calvaria; pia stripped easily; blood vessels engorged, tortuous, atheromatous; *lungs*, no adhesions, pale, latent foci of phthisis in both apices; *heart* $11\frac{1}{2}$ ozs.; mitral valve thickened and contracted; *liver* $43\frac{1}{2}$ ozs., soft, congested, discolored by bile throughout; *gall bladder* very small, contained rounded gall stones; another calculus was firmly fixed in the common duct, completely occluding it; *spleen* $5\frac{1}{2}$ ozs., soft, friable; *kidneys* $3\frac{1}{4}$, $3\frac{3}{4}$ ozs.; chronic diffused nephritis; capsules adherent in places; numerous cysts.

No. 34. *Head*, calvaria usual thickness; *brain* 42 ozs.; membranes not adherent to calvaria; pia injected, milky in streaks; brain tissue softened; membranes stripped easily except at summit of some convols. where pia was adherent; *heart* $8\frac{1}{2}$ ozs.; *liver* 43 ozs.; *spleen* $4\frac{1}{2}$ ozs.; *intestines* injected, adherent in many places; 1 oz. of pus in peritoneal cavity; *vermiform appendix* perforated in two places; ileum thickened, injected.

No. 35. *Brain* not examined; *lungs*, adhesions apex of r.; both lungs œdematous; lower lobe congested; *heart* 10 ozs.; aorta rough, small calcareous plates; *liver* $51\frac{1}{2}$ ozs.; slight increased connective tissue; *spleen* $2\frac{1}{2}$ ozs.; *kidneys* 5, $5\frac{1}{2}$ ozs.; cyst on l.; colon, ascending and upper half transverse portion much dilated; contained hard fæcal masses; about the middle trans. portion cicatricial constriction; small

lumen size goose quill; part of descending colon dilated; rectum distended by mass of hard fæcal matter so that it nearly filled pelvis.

No. 44. *Head*, calvaria thick; *brain* 53 ozs.; dura adherent to calvaria; pia injected; cerebro-spinal fluid increased; convols. somewhat atrophied; sulci deepened; arteries tortuous, irregularly thickened, containing calcareous plates; *lungs*, both pleuræ adherent throughout to thorax and diaphragm; both lower and middle lobe on r. side in state of red hepatiz.; upper lobe r. side several areas consolidation; *heart* 12 ozs.; valves slightly thickened; *liver* 48 ozs.; congested, soft, very friable; *spleen* $4\frac{3}{4}$ ozs.; congested, friable; *kidneys* $4\frac{3}{4}$, $4\frac{1}{4}$ ozs.; congested, cortices thin; capsules non-adherent; surfaces rough, markings indistinct; several small cysts on both.

No. 47. *Head* not examined; *lungs*, both bound by adhesions, l. more than r.; l. lung solid throughout from large number miliary tubercles and increased connective tissue; no cavities; *heart* 8 ozs.; soft, degenerated; *liver* $37\frac{1}{2}$ ozs.; congested, firm; *spleen* $4\frac{1}{2}$ ozs.; *kidneys* $3\frac{3}{4}$, 4 ozs.

No. 52. *Head*, calvaria thin; *brain* $45\frac{1}{2}$ ozs.; dura thick, adherent to calvaria, not adherent to cortex; basal arteries thickened in atheromatous patches; pineal gland enlarged; *lungs*, r. adhesions at back and axillary line; lower lobe congested, at base consolidated; left lower lobe completely solidified; *heart* $14\frac{1}{2}$ ozs.; l. vent. hypertrophied; aortic valve calcareous; bicuspid thickened; calcareous plate behind one cusp; *liver* 56 ozs.; saturated with bile; *gall bladder* thickened, in it one large gall stone and several small ones; common bile duct completely occluded by large gall stone; internal surface of gall bladder congested, eroded, appeared ulcerated; *spleen* 7 ozs.; firm, stained with bile; *kidneys* $5\frac{1}{2}$, 6 ozs.; capsules non-adherent; surfaces smooth, markings distinct.

No. 59. *Head*. *Brain* $42\frac{1}{2}$ ozs.; dura thickened; adherent to calvaria; cerebro-spinal fluid increased; pia thickened; large arteries atheromatous especially at base of brain; convols. atrophied; sulci widened; cysts of choroid plexus; *lungs*, r. firm, pleural adhesions throughout; lungs almost completely consolidated; red hepatiz. l. pleural cavity contained clear serous fluid; lobes congested; several areas of consolidation; dark brown color; *heart* $25\frac{1}{2}$ ozs.; hypertrophied; walls both vent. thickened; cavities dilated; mitral and aortic valves thickened; *liver* 39 ozs.; increase in connective tissue; *spleen* 6 ozs., dark, congested; *kidneys* 6, $6\frac{1}{2}$ ozs.; cortices thin, surfaces rough, capsules adherent, markings distinct, small superficial cysts.

No. 68. *Head*, calvaria very thick; *brain* 46 ozs.; dura thickened adherent; pia congested: opaque; brain softened; five ozs. of bloody serum escaped when dura was incised; thorax. *lungs*, l. lobe outer sur-

face adhesions; l. lower lobe contained encapsulated cavity 3 in. long, 2 in. broad, 1 in. deep; capsule cartilaginous, contained broken down, grayish material; *heart* $7\frac{1}{2}$ ozs; pale, flabby; *liver* 42 ozs.; *spleen* $3\frac{3}{4}$ ozs.; *kidneys* $3\frac{3}{4}$, $3\frac{3}{4}$ ozs.: *intestines*, pale, flabby.

No. 76. *Head*, calvaria thin, dense; *brain* 43 ozs., arach. opaque areas on vertex; circle of Willis anomalous (see ill. 75, Pl. IV), *thorax*; r. pleura weak adhesions; fibrinous deposits; inflammatory areas general; r. lung, lower lobe, state of red hepatiz.; *liver* 43 ozs.; softened, congested; *heart* 11 ozs.; valves competent; on mitral and aortic valves and adjacent endocardium small lime deposits; *kidneys* $3\frac{1}{2}$ ozs.

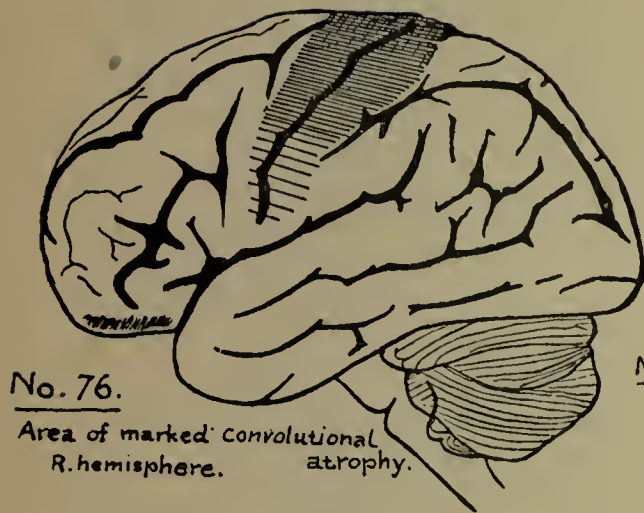
No. 79. *Head* not examined; *lungs*, l. firmly adherent; first stage pneumonia; process more advanced in lower lobe; r. lung healthy; *heart* $20\frac{1}{2}$ ozs.; fatty degeneration; r. vent. covered with thick layer of fat; on section muscular tissue almost disappeared, no valvular lesion; *liver* 68 ozs.; congested, fatty; *spleen* $10\frac{1}{2}$ ozs., firm, consistent; *kidneys* 8, $8\frac{1}{2}$ ozs.; congested; several small cicatrices; capsules adherent.

No. 83. *Head*. *Brain* 40 ozs.; dura congested, slightly adherent; blood vessels except at base thickened and tortuous; *heart* 12 ozs.; hypert.; walls of l. vent. 4 in. in thickness; aortic valves thickened; calcareous deposit in aorta beyond valves; *liver* 37 ozs.; congested, white patches on surfaces; three gall stones in gall bladder; *spleen* 2 ozs., hard; *kidneys* $3\frac{3}{4}$, $3\frac{3}{4}$ ozs.; *uterus* enlarged; contained number of fibroids; four sub-mucous fibroids.

No. 84. *Brain* 55 ozs.; no gross lesion found in brain; *lungs*, lower lobe of each completely solidified; dark granular appearance; pleura coated with fibrinous exudation; *liver* 83 ozs.; *heart* $12\frac{1}{2}$ ozs.; walls firm, valves competent; *spleen* $4\frac{1}{2}$ ozs; *kidneys* 7, $6\frac{1}{2}$ ozs.

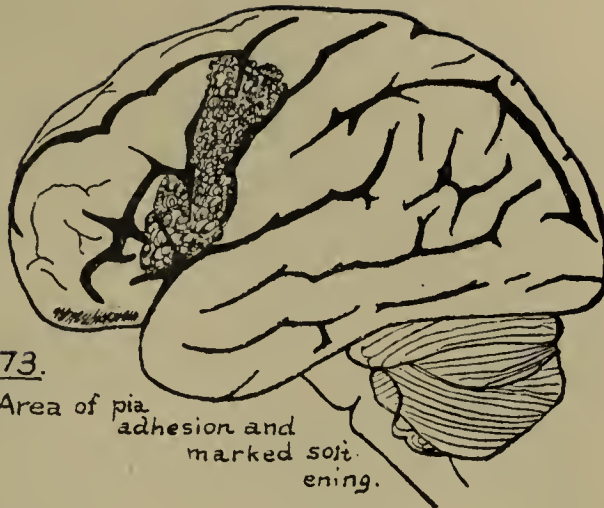
No. 87. *Head* not examined; *lungs*, r. slightly adherent; two upper lobes completely solidified between red and gray hepatiz.; small latent tubercular nodular apex l. lung; *heart* 13 ozs.; calcareous deposits on valves; *liver* $54\frac{1}{4}$ ozs., soft, congested, friable adherent to diaphragm; *spleen* $3\frac{3}{4}$ ozs., softened; *kidneys* $4\frac{1}{2}$, 5 ozs.; several small cysts on surface of each.

No. 90. *Brain*; pia opaque, injected; fluid between membranes increased; *lungs*, pale, mucuous membrane of larger bronchi thickened, reddened, filled with mucus; bronchioles filled with thick, white viscid fluid; *heart* $10\frac{1}{2}$ ozs.; muscles soft, friable, walls thin, especially in r. side; *liver* 46 ozs.; *spleen* 4 ozs.; *kidneys* 5, 6 ozs.



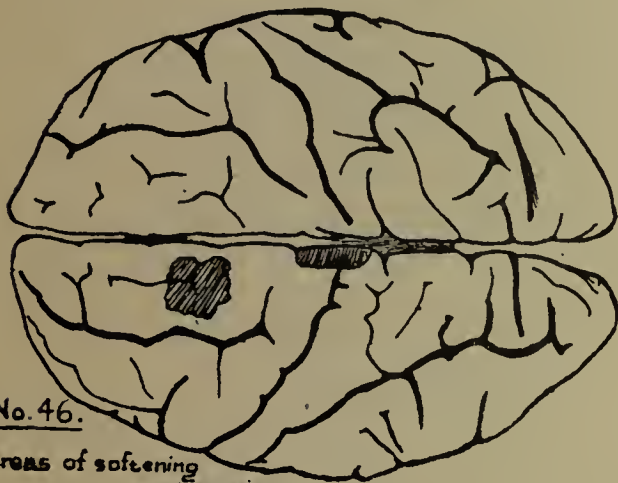
No. 76.

Area of marked convolutional atrophy.
R. hemisphere.



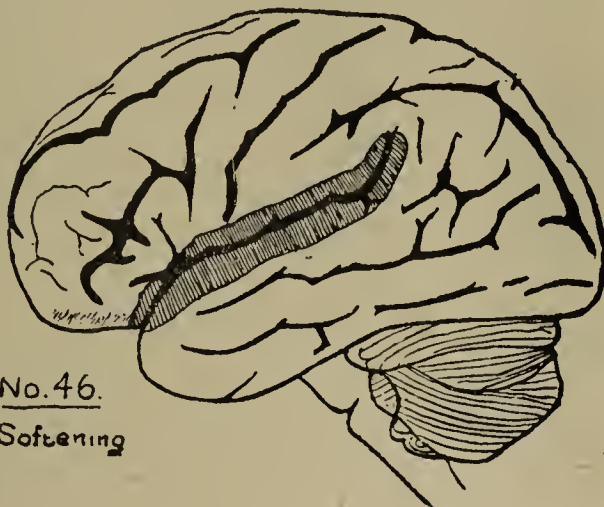
No. 73.

Area of pia adhesion and marked softening.



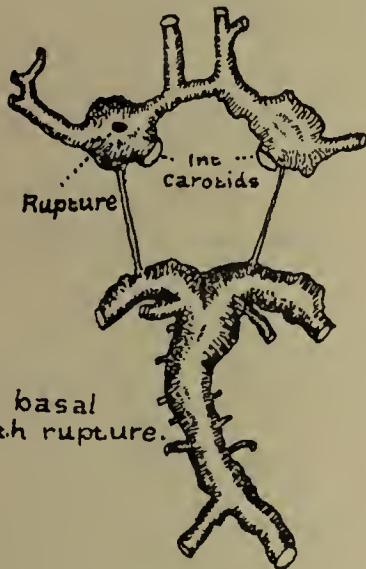
No. 46.

Areas of softening and erosion.



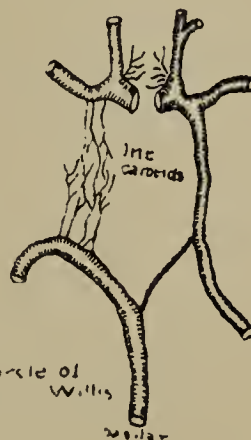
No. 46.

Softening



No. 15.

Aneurysms of basal arteries with rupture.



No. 75

Anomalous Circle of Willis

PLATE IV. Illustrating report of autopsies

No. 93. *Head*. *Brain* 51 ozs.; *dura* adherent to calvaria; *pia* opaque, thickened; encapsulated cysts in both int. capsules; *heart* $9\frac{1}{2}$ ozs.; lining membrane of r. auricle deeply reddened; pulmonary valves red, thickened but competent; *liver* $32\frac{1}{2}$ ozs.; tough, fibrous; *spleen* 6 ozs.; *kidneys* $4\frac{1}{2}$, 5 ozs.

No. 97. *Head* not examined; *stomach* lining membrane thickened, reddened, showing points hæmorrhagic infiltration, stomach dilated; *uterus* irregular, nodulated; a number of fibroids sub-peritoneal and interstitial.

Senile Dementia, Nine Cases.

No. 4. *Head* calvaria thick, dense; *dura* opaque, thickened and of milky hue; arach. at base was thickened, tough; convolutions atrophied; patches of atheroma throughout brain, especially of Sylvian arteries; other organs of body not examined.

No. 5. *Head* calvaria thin, soft; *dura* adherent to brain at vertex; arach. distended with serum; *pia* congested; vessels of base atheromatous; post. communicating arteries small; other organs of the body not examined.

No. 12. *Head* calvaria thick; *dura* adherent in places; brain atrophied patency of fissures diminished; *lungs* r. firmly adherent to thoracic parietes over its whole extent; apex tough, crossed by many fibrous bands, lung tissue contained tubercular deposit; nodules also present in l. apex; *stomach* distended with gas; *liver* hard, gritty, anæmic in spots and pale yellow; *spleen* large, friable; *kidneys*, l. small, atrophied, pale, capsule slightly adherent; appearance of small white kidney; pus in peritoneal cavity; intestines distended, thickened, injected, peritoneal surfaces dry; descend. colon just below junction with sigmoid flexure was drawn to median line of body and firmly adhered to ileum; ileum drawn from fossa to median line to meet colon, the union of the two formed a loop so united and distended as to form a large pouch; the portions of gut forming pouch were anastomosed and communicated; pouch filled with soft, yellow fæces; walls thin, gangrenous; there was a rupture about size tip of little finger from which septic material oozed.

No. 18. *Head* not examined; *lungs*, l, adherent posteriorly; congestion of lower part l. lung; r. lung four lobes; *heart*, hypertrophy of wall of l. vent. without dilatation; aortic and mitral valves thickened; a ring of calcareous plates about mitral orifice; *liver* congested, firm; *spleen* congested, friable; *kidneys*, small, capsules not adherent, cortex thin, markings distinct; encapsulated cyst of l. kidney, containing clear, yellow fluid; cyst of l. ovary $1\frac{1}{2}$ in. diam.

No. 40. *Head*, calvaria thick; *brain* $41\frac{1}{2}$ ozs.; dura thick, tough; cerebro-spinal fluid increased, amount 12 fld. ozs.; pia thin, stripped easily; convolutions atrophied; sulci widened; several small hæmorrhages in cortex, most marked in upper part of ascend. fron. convolution; other organs not examined.

No. 48. *Head*. *Brain* 41 ozs.; dura adherent to calvaria; pia thickened, milky, not adherent to brain; convolutions atrophied; sulci widened, deepened; *lungs*, r. upper lobe completely hepatized, middle and lower lobe congested and œdematous; pleura on r. side thickened; numerous firm adhesions on l. side; both lobes œdematous, *heart* $16\frac{3}{4}$ ozs.; two layers of pericardium adherent; endocardium reddened, especially in r. auricle.

No. 66. *Head* not examined; large myoma of uterus; *heart* 12 ozs.; dilated, flabby; walls of l. vent. attenuated; valves calcareous and rough; post-flap of mitral contracted thickened, edges rounded; ant. flap freer; cusps of aortic semi-lunar valve thickened but competent; irregular, nodular excrescences on their surfaces; *lungs* œdematous; from lower border of upper lobe of the l. lung was a small fibrous, pediculated tumor, resembling pulmonary tissue in atelectatic condition; *liver* 60 ozs.; gall bladder enlarged, thickened; *spleen* 9 ozs.; *kidneys* $4\frac{1}{2}$, $4\frac{1}{2}$ ozs.; *uterus*, with tumor, 43 ozs.

No. 91. *Head* not examined; *heart* 12 ozs.; hypertrophied, walls thickened; mitral valve thickened, rough; aortic valves thickened; pericardium filled with yellow fluid; surface of pericardium reddened and roughened; *liver*, congested; gall bladder distended with bile.

No. 95. *Head*. *Brain* 36 ozs.; sutures of skull broad, depressed and blue; occip. bone roughened, thickened, having a nodular appearance; other bones of cranium thin and soft; dura adherent to calvaria; pia adherent to brain; convolutions atrophied and softened; *lungs*, r. adherent by old, pleuritic adhesions; black cicatricial contraction at apex; apex congested, slightly consolidated and softened; apex l. lung congested and presented few cicatricial contractions; lower lobe collapsed; *heart* hypertrophied, 15 ozs.; r. auricle distended; in l. vent. was clot; slight roughening of valves; *liver* 33 ozs.; yellow cicatricial thickening of capsule on ant. surface; *spleen* $3\frac{1}{2}$ ozs.; soft, light colored; *kidneys* $3\frac{5}{8}$, 4 ozs.; tough, granular; one contained small cyst.

Organic Dementia, Thirteen Cases.

No. 7. *Head* only examined; calvaria slightly adherent; brain much compressed; congestion great, vessels filled with blood; convolutions

much flattened; whole fron. lobe seemed to be occupied by foreign body (see ill. 7, Pl. I); the tumor was free and about size of small orange; it had small pedicle $1\frac{3}{4}$ in. long and arose from inferior fron. convolution, from margin of fissure of sylvius; brain substance around tumor was soft and had lost its distinctive characters; tumor was incised; its wall was a thin fibrous sheath, its interior intersected by fibrous bands; it had appearance of sarcoma; corresponding with situation of tumor, calvaria on inner side was rough, had projecting nodule at a point beneath which the dura was adherent to the tumor.

No. 9. *Head*, calvaria thick irregularly; in temporal regions thin, translucent; dura dry, tense, not adherent to calvaria; on r. side brain bulged more than on l.; over r. super. fron. convolution, near post. extremity and from upper surface projected small excrescence in color and consistency like the white matter of brain; this tumor was covered by thin membrane continuous with dura; in the ant. fossa was large growth, size of fist, firmly adherent to base of skull, centered at sella turcica which was excavated and eroded; fragments of optic tract discerned but not trace of chiasm; inf. surface fron. lobe disintegrated, softened, partially excavated (see ill. 9, Pl. I); destruction of cerebral tissue involved all tissues ant. to the corpus callosum; tumor indurated, nodular, in its interior were radiating bands of tough-fibrous tissue, inclosing a cellular substance, partially broken down and softened.

No. 10. *Head*, calvaria slightly thickened; some external roughening along sagittal suture; dura thick, dense, tough and adherent to calvaria; pia thickened, opaque not adherent to brain; arach. thick, opaque along course of vessels; hemispheres flattened, congestion of both gray and white matter; ventricles dilated, contained increased quantity of serum; surface of corpus striatum roughened; small dark spot on surface of lenticular nucleus; numerous small cysts in choroid plexus; floor of lat. ventricle roughened and dry; congestion of basal ganglia, pons and medulla; *lungs*, marked congestion both lower lobes; *heart*, semi-lunar and tricuspid valves thickened; arch of aorta thickened, rough; *liver* small, pale and dense; *kidneys* small, capsules not adherent, cortex thin, markings distinct, surface rough; *spleen* soft, friable.

No. 15. *Head*, scalp thick; calvaria thin; membranes tense; pia congested; separated from dura over body of sphenoid and basilar process of occipital by thick clot; beneath pia clot extended from about middle of ant. lobe back to point about an inch beyond ant. border of cerebellum; laterally it extended out about $1\frac{1}{2}$ in. on either side; when clot was taken away an aneurism was found on each inter. carotid just below

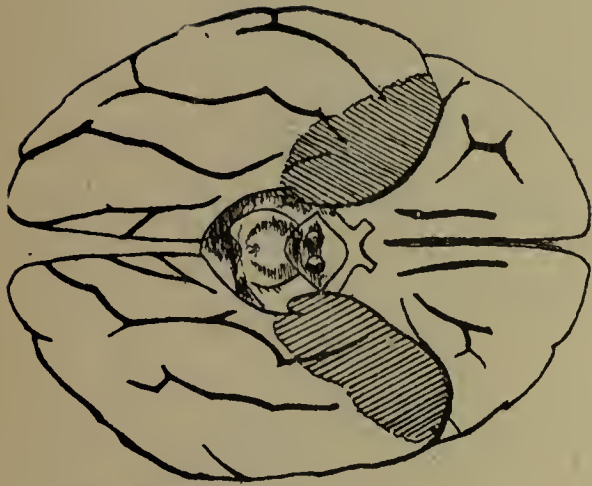
its division; ant. and middle cerebral dilated; walls thin; post. communicating arteries small; *lungs* few adhesions at apices; *liver* congested.

No. 24. Head, calvaria usual thickness; *brain* $41\frac{1}{2}$ ozs.; dura slightly adhered to calvaria but not with other membranes; pia thick, tough, congested; in lines of vessels arach-milky; adhesions of pia were general but not found in sulci; *lungs*, soggy, compact but crepitant; pleuritic adhesions on r. side; *heart* $5\frac{3}{4}$ ozs.; *liver* 54 ozs.; several deep depressions on right lobe; *spleen* 6 ozs.; *kidneys* $4\frac{1}{2}$, $4\frac{1}{2}$ ozs.; cortex thick, pale, capsules adherent.

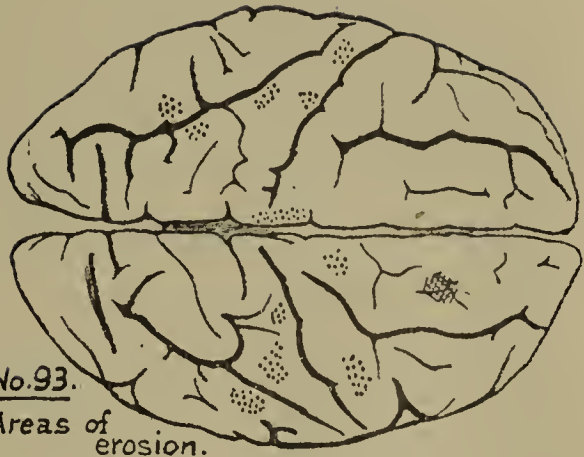
No. 28. Head. *Brain* 45 ozs.; dura thickened, adherent to calvaria in several points over vertex; pia thickened, opaque and in places had granular appearance; cerebro-spinal fluid increased; pia not adherent to cortex; arteries thickened; sulci broad, convolutions atrophied; post. communicating artery absent on r. side, and much enlarged on left (see ill. 28, Pl. II); *lungs* r. middle lobe consolidated, lower lobe congested; l. lower lobe congested; *heart* $15\frac{1}{2}$ ozs.; hypertrophy of l. ventricle; mitral valves thickened; *liver* 47 ozs.; congested, an increase in connective tissues; *spleen* 3 ozs.; *kidneys* 3, 3 ozs.; small, capsules adherent; cortex very thin; markings indistinct.

No. 39. Head. *Brain* $39\frac{1}{2}$ ozs.; visceral layer of dura adherent, vessels injected; arteries of brain thickened, atheromatous; pia stripped easily; parietal lobe r. hemisphere superficially softened and collapsed; gyri flattened and matted together; the softening occupied parts of area supplied by third and fourth branches of Sylvian artery; optic thalamus and adjacent white structures were destroyed; in middle of lenticular nucleus was softened area size of pea; *lungs* both consolidated and adherent at apices; *heart* $11\frac{1}{2}$ ozs.; hypertrophied without dilatation; arch of aorta thin, distended, calcareous deposit on it; valves roughened; large, firm white clot in l. ventricle; *liver* deeply colored and friable; *spleen* 4 ozs.; *kidneys* $3\frac{3}{4}$, $3\frac{3}{4}$ ozs.; contracted, capsules adherent.

No. 46. *Brain* 38 ozs.; dura adherent; thick along long fissure, opaque and rough patches particularly over l. sup. front. conv., where the membranes carried with it the entire conv. disorganized; also degeneration of l. ant. ascend. conv. and ant. half of paracentral lobule; pia thick, congested; basal arteries atheromatous, particularly the Sylvian; l. Sylvian plugged by thrombus, in center of which was rough calcareous plate; *lungs* œdematous with cicatricial contractions; *heart* 14 ozs.; parietal pericard. adherent and cavity obliterated, heart dilated

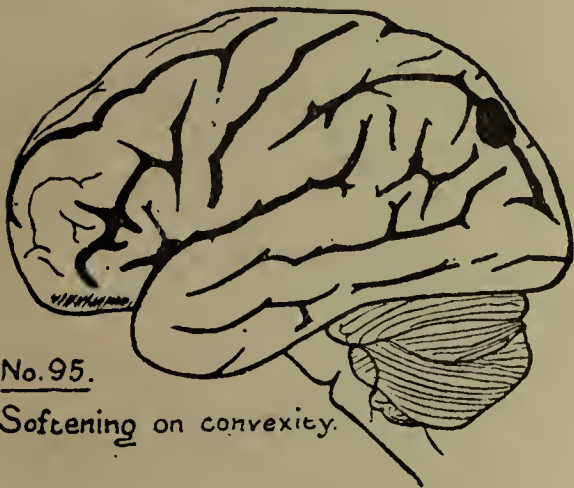


Areas of softening.



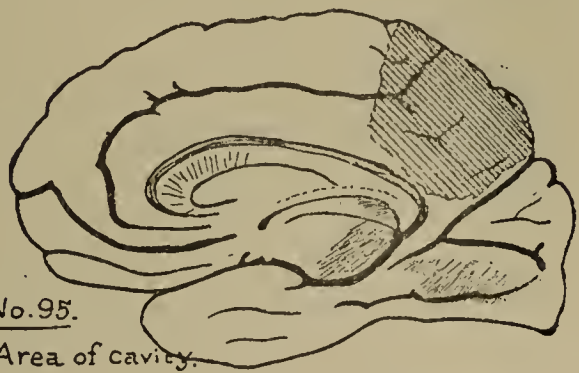
No. 93.

Areas of erosion.



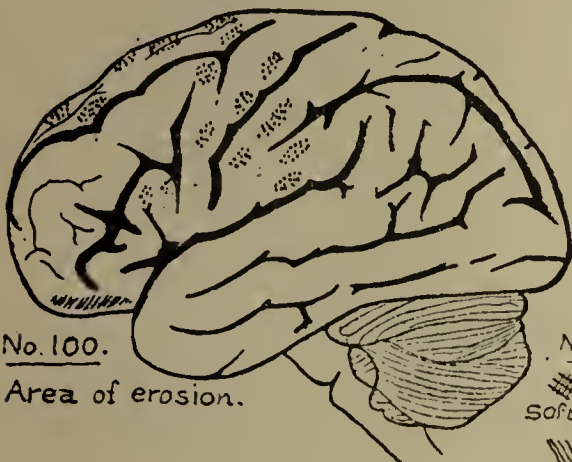
No. 95.

Softening on convexity.



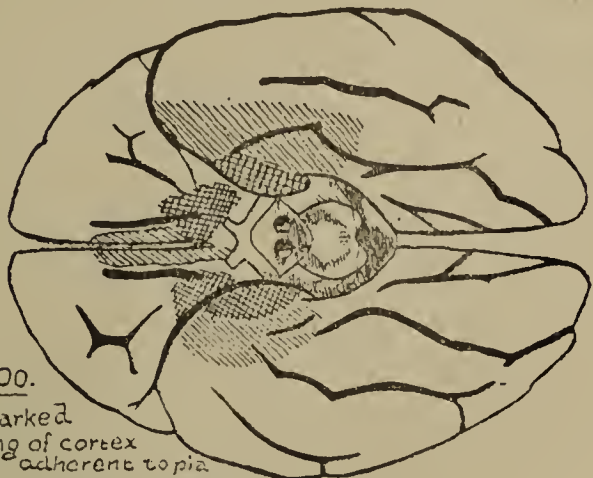
No. 95.

Area of cavity.



No. 100.

Area of erosion.



No. 100.

Marked softening of cortex adherent to pia
/// Less marked softening.

and hypertrophied; mitral thick, irregular; calcareous cusp of aortic, arch distended, walls attenuated; *liver* 22 ozs.; engorged; *spleen* $2\frac{1}{3}$ ozs.; *kidneys* 3, 3 ozs.; contracted, deep red, tough, capsules adherent; cortex rough and mottled. (See ill. 46, Pl. IV).

No. 50. *Brain* 48 ozs.; calvaria thick, containing a spherical excavation over left vertex; vertical pia thick, engorged; basal of pia attenuated, adherent; base and lat. boundary of r. temporo-sphen. lobe disorganized and degeneration extended to internal capsule; arterioles tough, extending and perivascular spaces enlarged without atheroma; *heart* 10 ozs.; semi-lunar valves thin, transparent, fenestrated; *lungs* cicatrices in apices surrounded by consolidation; *spleen* 3 ozs.; *kidneys* 4, 4 ozs.

No. 55. *Brain* 51 ozs.; dura slightly thickened; pia generally thick, tough, adhered to cortex into sulci; sub-arach. serous patches; vascularity of pia greatly increased, especially over l. front. and parietal convols.; cortex softened and generally adherent to membranes. No other organs examined.

No. 57. *Brain* 45 ozs.; dura thickened and adherent over vertex; pia thick, opaque, granular, but not adherent; arteries thickened, apparently, fatty in places; convolutions atrophied; anomalous circle of Willis (see ill., 75 Pl. IV); perivascular softening throughout brain emphasized on r. side; *lungs* r. middle lobe consolidated; *heart* $15\frac{1}{2}$ ozs.; l. vent. walls thick, mitral slightly thick; all arteries atheromatous; *liver* 47 ozs.; congested, connective tissue increased; *spleen* ozs.; marked increase of connective tissue; *kidneys* 3, 3 ozs.; dense capsule adherent, cortex thin, definition lessened.

No. 80. *Brain* 38 ozs.; calvaria thick; Pacch. attachments increased, firm; pia thick, opaque and especially along vessels; marked increase of serum; vessels engorged; no cortical adhesions except agglutination of front. lobes; vessels prominent on section, and puncta-vas. numerous; peri-vasc. spaces increased and patulous; choroid injected and surrounded by small cysts; no focal lesions; *spinal cord* negative; *heart* 8 ozs.; mitral, nodulated edges with opacities; sinuses of Vals. deep, excavated; arch distended, attenuated, with slight roughening; *lungs* r. cicatrices with apical contraction; l. pleura adherent, atelectatic; thoracic veins distended with fluid blood; *liver* $32\frac{1}{2}$ ozs.; surface mottled, minute yellow degeneration internally; *spleen* $1\frac{3}{4}$ ozs.; *kidneys* $3\frac{1}{4}$, $3\frac{1}{2}$ ozs.; injected, def. increased; *uterus* enlarged, firm, fibrous, and vessels toughened.

No. 82. See report of case No. 179, by Dr. Flavius Packer (see Fig. 2, Pl. III and Fig. 1, Pl. IV).

Without attempting a complete analysis of the foregoing cases, it may be profitable to state that 91 per cent. of those of which the head was examined presented gross disorganization of brain tissue; and 92 per cent. gave evidence of persistent circulatory disturbances by membranous changes; and 83 per cent. presented arterial disease or degeneration. The kidneys of 62 per cent presented abnormal features.

THE COEXISTENCE OF INSANITY AND PELVIC DISEASES.

By CAROLINE S. PEASE, M. D., Assistant Physician.

The question of the part played by pelvic disorders in producing insanity has been an open one since the days when Aristotle taught that the womb traveled through the body, producing many of the otherwise unaccounted for diseases of suffering woman.

And to-day, while the revelations of anatomy have limited the metes and bounds of its journeyings, the impression is not confined to the laity but is fostered by a large proportion of the medical profession that in some not well understood manner, that malign organ works havoc with the reason and the nerves of women.

Indeed, to so great an extent is this organ made the scapegoat of all the ills not directly traceable to lesions elsewhere, that the tyro in medicine might well ask whether woman has, as has her more fortunate brother, a brain and spinal cord capable of disease in themselves, or whether all mental and nervous manifestations are with her but the expression of the reflex work set up by this busy organ.

But if these be extremists, on the other hand we find arrayed a large showing, and of these are many alienists, who assume the relations of pelvic diseases to insanity to be of so slight degree as to be unworthy of consideration.

And here it is proper to state that in offering the results of such investigations as I have been able personally to make, I neither expect to reconcile the two extremes of belief, nor aspire to settle pragmatically the vexed question; for whoever attempts to do either, leads a forlorn hope.

It has seemed to me that we who are appointed to do gynecological work among the insane have broader opportunities for observation than can be obtained by any other body of physicians, and that we owe to our profession that we give it something of the results of our work.

Authorities without number might be cited, pro and con.; but the great majority of them are content with asserting their position, without taking this trouble to give a "reason for the faith that is in them."

In looking over the annual reports of a large number of hospitals, these reports numbering several hundred, and covering a period of many years, I have been impressed with the very small number of cases attributed to pelvic diseases.

A certain large hospital in a sister State, in a recently published report covering several years, gives among the causes of insanity in 6,491 female patients under care, 158, or less than two and one-half per cent., as due to uterine diseases.

I believe that an average of the percentages in the whole number of reports examined would fall much below this; indeed, the published report for 1885 of the Committee of Lunacy of Pennsylvania gives but three cases in 1,000, or three-tenths of one per cent.

Were we to accept these reports as a correct exponent of the percentage of pelvic disease, we might very pertinently inquire as to the need of appointing a gynecologist in our large hospitals, any more than an oculist or a throat specialist.

That these reports are greatly misleading as to causes, every hospital physician knows, since they are based, not on the actual condition of the patients, but on what the physicians who commit them to hospital care, themselves as a rule neither alienists nor gynecologists, state on their commitment papers to be the supposed cause.

But turning from these very low percentages, based on such data, to those estimated on actual examinations of insane patients, we find in the Thirty-third Annual Report of Harrisburgh Hospital for the Insane that Margaret A. Cleaves, then physician in charge of the female department, says: "My own actual experience convinces me that at least thirty per cent. of insane women are the subjects of lesions of the reproductive organs."

In the report of the Harrisburgh hospital for 1891-2, Dr. Jane Garver reports admissions 108, with uterine complications in thirty, or twenty-seven and one-half per cent.

In the report for 1885-6 of Kankakee, Ill., insane hospital, Dr. Delia E. Howe states that disease of the female generative organs existed in thirty per cent. of the female insane admitted during the year.

If from the conflicting reports of the hospitals where the great majority of the insane are massed, and where we might with reasonable assurance look for something to guide us, we turn in disappointment to the periodical literature of insanity, down through the years, we shall find little more.

Looking through a large proportion of the best journals of mental diseases published in English in the last twenty-five years—years in which gynecology has made sturdy strides, and the

alienist, adverse criticism to the contrary notwithstanding, had not been entirely idle, I find not more than a dozen articles which try in any way to elucidate the relations of mental and pelvic diseases.

The two most interesting contributions to journalistic literature I have been able to find on the subject were made, respectively, by Dr. Alice May Farnham, of New York State, and by Dr. I. Danillo, of St. Petersburg, Russia ; both of these articles embodying clinical studies made by the writers.

In 1887 Dr. Farnham, then of Willard State Hospital, conceived the original idea of comparing the condition of the pelvic organs of a certain number of insane with those of an equal number of sane women of the same social class. This at first glance would seem a most equitable comparison, and that the results must be of value. But Dr. Farnham in making her plan lost sight of an important factor. She could examine the chronic insane, but when it came to an equal number of sane women her plan miscarried ; for she could not go out and examine an equal number from the same walks in life from which the insane came, but was obliged to make her examinations on the inmates of a penitentiary — filled with the vicious, not merely the unfortunate, and this fact invalidates her conclusions.

Inmates of a penitentiary, taken from the criminal class, are, in the nature of things, more liable to diseases of the pelvic organs than are women who, like the great majority of our insane, have led pure lives.

Dr. Farnham found that out of thirty women of this class, whom she terms “mentally healthy women,” but four were found whose pelvic organs were in a condition of health ; while out of the same number of insane women taken seriatim from two Willard wards, six were found in whom the pelvic organs were in health.

Since the ingenious comparison was necessarily unfair to the unfortunate insane, we will set it aside, and for the purposes of this paper, retain only the isolated fact that of her thirty insane women she found twenty-four, or *eighty per cent.*, to have some form of uterine disease.

The fact that eighty per cent. of any body of women are found to have pelvic lesions, leads to serious consideration.

In 1882, in *Archives de Neurologie*, Danillo published the results of forty-two examinations made by himself of insane women, finding that thirty-five or eighty-three per cent. of the whole “presented various types of sexual anomaly.” Not satisfied to draw deductions from so small a number, he augmented these by 155 cases taken from other sources, making a total of nearly 200. Of these 200 cases, 131, or sixty-five and one-half per cent. “presented diverse lesions of the sexual

apparatus." And he found that out of 140 menstruating patients, 120, or eighty-five and one-half per cent. presented sexual anomalies.

Danillo's article is replete with interesting facts and statistics, but his cases were almost all of the chronic class, only twenty-six out of the 200 being reported acute cases. I may here state that the cases examined by Dr. Farnham at Willard were also of the chronic insane.

Our great authorities on insanity, in the accepted text-books issued by them, give little more than a passing allusion, if anything at all, to the casual potentialities of pelvic diseases.

Clouston, in a book of 543 pages, devotes three pages to what he terms uterine or amenorrhœal insanity—and gives those three entirely to the consideration of disordered menstruation. The question of insanity from diseases of or injuries to the pelvic organs he passes by in silence.

Bevan Lewis, in a work of 541 pages, gives no place to the effects of uterine diseases on mental alienation, thus virtually assuming that no relation exists between them.

Turning from the text-books of the alienists to those of the gynecologists we find them also, as a rule, silent; until we come to the investigations of Skene of Brooklyn, embodied in the terminal chapter of his admirable work on gynecology published in 1890. Holding the position of gynecologist to the Flatbush asylum, he gives us the results of his observations there, followed by valuable hints as to practical methods of work. He writes: "Organic diseases of the sexual organs exercise a most important influence in causing insanity, and tend to retard recovery from it. Under that head are included all the appreciable diseases of the ovaries, uterus and vagina that are characterized by change of structure or position. These need not be named individually, but I may mention some conditions that are more properly called results or products of disease, in contradistinction to active morbid processes. Such are the products of pelvic peritonitis and cellulitis, cicatrices of the cervix and vagina. These, by adhesions and contractions, often cause severe pelvic pains, sufficient to induce or keep up insanity.

"These affections of the sexual organs frequently cause insanity directly or indirectly, and unlike functional diseases, are not as a rule relieved by the mental derangement which follows. * * * These diseases of the sexual organs remain as a disturbing element to keep up the derangement of the brain, or at least to retard recovery.

"In this way the insanity and the disease of the sexual organs act in concert to maintain each other, to the detriment of the unfortunate sufferers. * * * It is certain that whenever disease exists in the

sexual organs of insane women, the condition of the brain, if influenced thereby at all, must be affected unfavorably.

“If such diseases of the sexual organs are capable of causing insanity (a fact that appears to be settled by our best authorities on both sides) they must also tend to keep it up.”

Pozzi says: “The sexual apparatus is not, so to speak, an accessory wheel in the female mechanism; it is, on the contrary, the chief wheel, and it is to secure its proper action that the constant economies and reserves are made by nature.” If this be true, what more logical than that a derangement of this “chief wheel” should cause havoc with the mental processes?

But when all is said, we must admit that our knowledge of the minute anatomy of the nerves of the pelvis is far from perfect; that of their relations to the sympathetic, much is still left to conjecture, and we must fall back on clinical data to substantiate our theories.

For whatever interest or value they may have, I now offer the following clinical observations made by me at this hospital during the past six months.

These are not selected cases, but embrace all admissions during that period (except such as refused examination; no woman having been examined without her consent), with such other patients from our previous population as would permit.

These cases aggregate 150 and are equally divided into two classes: Those in whom the insanity has been less than two years duration, classed as recent and presumably recoverable; and those in whom the duration has been two or more years, classed as presumably non-recoverable; or briefly, for convenience in writing, as “acute” and “chronic.”

Of the seventy-five chronic cases, fifty-four, or seventy-two per cent., revealed a marked deviation from the normal standard of pelvic health.

Of the thirty-one unmarried in this class, sixteen, or fifty-one per cent., presented deviations from the normal.

Of these, one was a case of defective development of uterus and vagina, the others uterine displacements, endometritis or purulent vaginitis; in some cases one, and in some all three conditions existing.

Of the forty-four married—and with these are classed widows—thirty-eight, or eighty-six per cent., presented deviations from the normal. Subdividing the married as either childless or child-bearing, we find that of the eight childless women, five, or forty-seven per cent., present deviations from health. These cases were all uterine displacements, endometritis or purulent vaginitis; and, as in the case of the unmarried women, existing either alone or in combination.

Of the thirty-six child-bearing women, thirty-four, or ninety-five per cent., suffer in more or less degree from pelvic diseases; and of these thirty-six women, twenty-one, or fifty-eight and one-third per cent., had suffered laceration of either cervix or perineum, or of both, in such degree as we would consider a cause of very considerable neuroses and general ill health in sane women.

Remembering that several forms of disease, as prolapsus, vaginitis, etc., were coexistent in several cases, the deviation may be briefly tabulated as follows:

Laceration of cervix	9
Laceration of perineum	7
Laceration of cervix and perineum	5
Cervical polypus	3
Endometritis	7
Erosion of cervix	8
Pelvic adhesions	1
Defective uterus and vagina	1
Stricture of vagina	2
Purulent vaginitis	9
Vulvitis	1
Urethral carunculæ	3
Anteversion	1
Retroversion	4
Prolapsus	10

Among the different forms of insanity the lacerations were distributed as follows.:

Dementia	10
Chronic mania	7
Chronic melancholia	2
Epilepsy	2
Circular insanity	1

And now turning from the so-called chronic to the acute class, always of more interest, what shall we find? Of the whole number, seventy-five, we find fifty or sixty-five and two thirds per cent. to suffer from some form of uterine disease.

Of this series of seventy-five, twenty-three were unmarried, and fifty-two were married or widows.

Of the twenty-three unmarried, eleven or forty-nine per cent. were diseased.

As in the chronic cases, these were all displacements, endometritis, or purulent vaginitis.

Of the fifty-two married, thirty-nine, or seventy-five per cent., had uterine disease.

Again subdividing the married as childless or child-bearing, we find that twelve had not borne children. Of these twelve, four, or thirty-three per cent. had some form of uterine displacements.

Of the forty child-bearing women, thirty-eight or ninety-five per cent. had marked deviations from health.

Of these thirty-eight women, sixteen, or forty-two per cent. had sustained a laceration of cervix or perineum, or both, sufficient to call for reparative procedure in sane women, or to have caused marked deterioration of health if left unrepaired.

The entire number of pelvic ailments in this series of seventy-five may be classified as follows :

Laceration of cervix	5
Laceration of perineum	1
Laceration of cervix and perineum	10
Prolapsus	10
Anteflexion	2
Anteversio	1
Retroflexion	1
Retroversion	2
Endometritis	11
Erosion of cervix	10
Vaginal adhesions	1
Purulent vaginitis	9
Gonorrhoea	1
Cellulitis	1
Prolapse of tube	1
Fibroid tumors	2

Lacerations furnished the largest percentage of ills in this series of cases, as in the chronic ones. Among the different forms of insanity they were distributed as follows :

Acute mania	8
Acute melancholia	5
Sub-acute melancholia	2
Dementia	1
Epilepsy	1

Upon woman falls the strain of reproducing the species. Who shall deny that on these poor women it has fallen with a force which has helped to crush them?

In calling attention to the astonishing frequency of lacerations in our child-bearing insane, I by no means asseverate that the pelvic lesion has been in a single instance the predisposing cause of their alienation, any more than I would assume that every woman who sustains a laceration is bound to lose her reason.

Many of them, unfortunately, were handicapped in the race by their ancestors before they were born, and after bearing up with such strength as has been meted out to them, against the resistless sweep of heredity, have at last given up the struggle against unequal odds, and succumbed.

And of such we may know that whatever has tended to lower the standard of physical health, whether unhygienic living, hard labor, domestic troubles, dull and monotonous lives, child-bearing, or what not, has but hastened the coming of their inheritance.

But I do maintain, in the security born of the study of such statistics as I present you here as the result of this series of 150 pelvic examinations of insane women, that the relations of pelvic diseases to insanity are worthy of earnest study. The field of investigation is open, in all our great hospitals the harvest is ready—the laborers are few.

The merciful law of compensation is illustrated nowhere better than in the study of these lesions. The woman who has sustained a cervical laceration sufficient to materially influence health, as a rule ceases to bear children; and if such an one recovers from her insanity in sufficient degree to resume her marital relations, she is not likely to transmit her mental tendencies to posterity.

It is no part of the purpose of this paper to discuss the insanities of puberty, the puerperal period, or the climacteric. Those are recognized and treated of by writers of all grades of intelligence and of authority.

An attempt was made to ascertain the condition of the menstrual functions, and to make some sort of classification based on it. But to this the obstacles became insuperable, owing to the unreliability of our sources of information.

Many of our patients had been under observation here for too short a period for us to learn from that source—their own statements are obviously unreliable, and we have often no other source of information.

But of the 150 women, forty-eight are known to have passed the climacteric, forty-seven are known to be more or less irregular, and but twenty-one are known to be fairly regular. Regarding the other

thirty-four, the information is too unreliable for consideration. It would seem from this showing, unreliable as it admittedly is, that irregularities of that function largely preponderate.

I may further say, though it is perhaps irrelevant, that of the so-called chronic class the average age of the patients examined was forty-six and one-third years, and the average duration of mental diseases nine and one-third years—while of the so-called acute class, the average age was thirty-seven years, and the average duration of mental diseases, six months. It is of a certain interest also to know that the whole number of children borne by these 150 unfortunate women, and to whom possibilities of mental alienation are given as their birth-right, is but 236; or an average of less than two each.

Finally, I proffer the results of such original observation as I have been able to make on these lines, during a half year crowded with other and diverse work, neither assuming that I have treated the subject exhaustively, nor arrogating to myself the belief that another might not have done it better.

A RECOVERY HASTENED BY DIVERSION.

Reported by ROBERT G. COOK, M. D.

Case No. 550 was admitted to the hospital on January 19, 1892. He was 21 years old, single, and born in the United States of Irish parentage. It was stated that he used tobacco moderately and that he had had cerebro-spinal meningitis when 4 years of age. He had had one previous attack of insanity from which he recovered in eleven months at the Utica State Hospital.

On admission the duration of insanity was said to be five months, but no history was given of his actual condition during that time. He was in a cataleptoid condition, was well nourished and fairly strong, and presented no physical signs of thoracic disease. There was no decided change in his condition for about six weeks when he refused food entirely. He was then kept in bed and it was necessary to feed him by a tube. He made no voluntary exertion and continued to be cataleptic at times, but at others held his limbs rigidly when anyone attempted to move them. He kept his eyes closed during this period and took no apparent notice of his surroundings, and did not talk even in reply to questions. His circulation was extremely sluggish and his hands were usually quite blue. He began to take liquid food early in June, and in July took solid food, but he would not talk or open his eyes. He was dressed each day after the early part of September, but resisted attendants by holding himself rigid, and would not walk voluntarily or do anything for himself. In December he sometimes opened his eyes and occasionally walked of his own accord, but still resisted efforts to care for him. In January he began to talk to one night-watch, but to no one else. He also read occasionally, but did not improve physically, and soon became worse again until it became necessary in May to feed him by a tube. At that time he reached his lowest weight ($94\frac{1}{2}$ pounds), but it was necessary to feed him only a short time, though he improved very slowly during the summer and autumn. In January, 1894, he weighed 126 pounds and kept his eyes open much of the time, but refused to talk, and resisted attendants who had to push him about. He would take steps only to keep his balance, as his body was pushed forward.



On February 17th he was taken to a patients' dance, and it was necessary to push him along to get him there, but while at the dance he suddenly began to talk and finally danced. He walked back of his own accord and the next day conversed readily and rationally. He continued bright and rational from this time, though for a few weeks he would occasionally stare at an object for several minutes at a time, but would then collect himself. He was allowed parole on the grounds from February twentieth, and was discharged recovered on March thirtieth, at which time he weighed 150 pounds. This was a little over two years and two months after his admission, and two and one-half years after the beginning of his symptoms of insanity. After he became rational he said that he could remember all that happened during the period of depression, and gave many facts showing that he did so. He stated that his conduct was influenced by delusions which he described, though he had never mentioned them when under their influence.

The photographs show his condition when depressed and after recovery.

MENTAL ENFEEBLEMENT IN ACROMEGALY, WITH REPORT OF A CASE.

RICHARD H. HUTCHINGS, M. D., Assistant Physician.

Acromegaly is generally considered one of the new diseases, although it has undoubtedly existed for many centuries, it has only become a clinical entity since Pierre Marié named and described it in the year 1885. It is probably a member of that class of affections dependent upon perverted glandular action, of which myxœdema and exophthalmic goitre are more familiar examples. Its resemblance to these is in its more superficial aspects — chronicity and gross changes in bodily conformation and facial expression — but not a little confusion existed at one time regarding them. But there is another point of resemblance, fairly constant, which merits consideration, viz., a tendency to mental change, which, in acromegaly, may vary from simple good-natured disregard of their pitiable condition to dementia as profound as in the case of Adma, the “French giantess,” at the time of her death. The heavy, sad, apathetic countenance, slowness of speech and movement are mentioned with sufficient frequency in reported cases to attract attention, and it does not seem improbable that its degree may have some relation to the duration of the disease. The case about to be reported presents the mental enfeeblement to a degree amounting to dementia, but it differs radically from the dementia of senility, and was not, as far as we have been able to determine, preceded by a period of acute alienation, and seems to be a gradual and progressive deterioration of the mental faculties unaccompanied by delusions or perversions of the special senses.

This man, case No. 1372, was arrested in 1885 as a tramp and committed to the county almshouse. Here his mental condition becoming apparent, he was examined as to his sanity and was duly committed to the Binghamton State Hospital. The certificate of lunacy throws but little light on his mental condition at that time; it states that he wandered about aimlessly and was not able to take care of himself. He is described as about 50 years of age; married; German; blacksmith by trade. At Binghamton his history was of gradually increasing demen-

PLATE VII

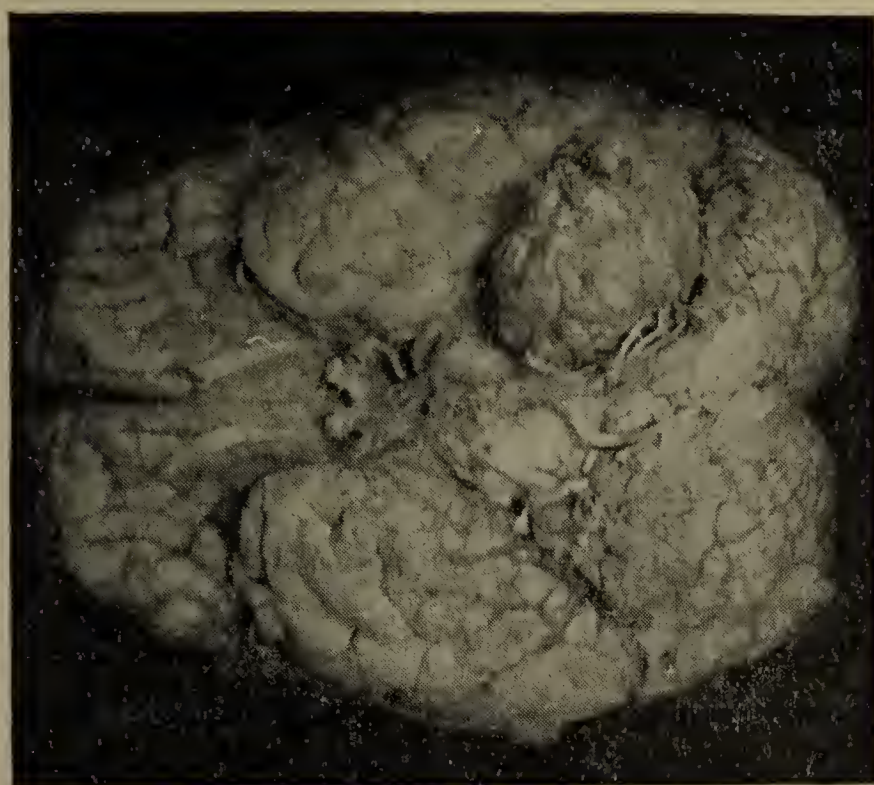


FIG. 1



FIG. 2



tia. No mention was made of delusions, hallucinations or illusions; irritability of temper was noted (when unemployed), and it was observed that he could not endure tight bands but kept his shirt habitually unbuttoned at the throat — two symptoms frequently mentioned. His peculiar physiognomy was noted but not described, and there is no record of the appearance of his hands or feet. From this institution he was transferred to the Hudson River State Hospital, where his condition was uniform and differed in no respect from the description given above. He was transferred to the St. Lawrence State Hospital on the eighteenth of January, 1894, with forty-nine others, on the occasion of the occupation of new buildings. The striking appearance of his face attracted the attention of one of the assistant physicians, who singled him from a large party of walking patients, and confirmed the diagnosis by examining his hands and teeth. (See Plate VII, Fig. 2).

We see in case No. 1372 a man below the medium height but large of bone and thick set; there is marked cervico-dorsal kyphosis, which projects the head forward until the chin almost touches the sternum, and a line drawn from the occipital protuberance to the twelfth dorsal vertebra describes a fairly regular curve. His arms and legs are well formed and of normal muscular development. A layer of fat makes the abdomen somewhat prominent.

Head and face.—The head at first glance appears small, but this is largely due to the contrast with the large face and lower jaw; there is, however, a mild degree of platycephaly. The scalp is thickly covered with stiff dark hair sprinkled with gray; the forehead is normal in shape, rather low, and is deeply furrowed by wrinkles, some of which are transverse, others radiate from the nasion. About the temporal region on both sides are a number of pinkish moles, which vary from the size of a button to that of a pin head.

The ears are large and prominent, the lobes not well formed; there are no scars or points of thickening, but at the summit of the right is a calcareous plate .012 broad by .019 long. It is thin but firm, adapts its shape to that of the helix, and can only be detected by touch. The supraorbital ridges are prominent, the eyes deep set and quite small; the nose is large and broad, and the lower portion of the face markedly prognathous, which, coupled with the everted, drooping lower lip and retreating chin, gives to the face a striking and characteristic appearance. The upper lip is rather prominent, the lower is hypertrophied and elongated; the tongue is broad and flabby, and he has some difficulty in protruding it, but its dimensions are not greatly altered. The

lower jaw is elongated and pushed forward beyond the upper, just how far is difficult to determine, as the upper teeth are all missing. The lower teeth are in place and separated by distinct spaces.

Hands.—His hands are short, thick and broad — spade shape; the fingers show but little variation in length and do not appreciably taper. The nails are short and broad, and are grooved longitudinally; several present a characteristic peculiarity, viz., elliptic in shape, with the long axis transversed. This condition was best shown in the third finger of the left hand, where the measurements noted were: breadth, 15 mm.; length, 9 mm. The thickness of the hands is augmented by a considerable increase of connective tissue in the palms. The lines in the palm do not deviate from the normal except in depth. He is not especially awkward in the use of his hands, and can pick up a small object, such as a coin, without difficulty.

Feet.—His feet are not of abnormal size, but are square, thick and flat; the thickness is due to an enormous increase in the connective tissue of the sole, which, at the heel, seems to be fully an inch. The integument of the sole is thick, and is marked by numerous deep lines; the plantar arch is practically obliterated. The toes are short and stumpy, and the nails very imperfectly formed. They present the peculiarity of the finger nails, and are pushed forward to the end of the toe and inclined downward, a result possibly due to short boots. The feet do not pit on pressure; the soles are firm and elastic. The legs present nothing abnormal in size or muscular development.

The pelvic bones are broad and capacious, and the brim is rather higher than normal. The thorax is well formed, the ribs large and strong. The sternum is of normal dimensions, but the xyphoid process is elongated and curved forward. The clavicles are very slightly curved, and are thick and strong. The scapulæ present no abnormality. The cervico-dorsal kyphosis has already been mentioned; there are no lateral curvatures.

The expression is peculiarly sad and pathetic, which is due in a large measure to the protruding lower lip, and with his attitude suggests the profound dementia sometimes seen in advanced epilepsy and other forms dependent upon organic brain disease. He expresses himself only in German. His speech is thick and guttural, and it is difficult to understand what he says, but those who speak low German and understand him best say his words are very imperfectly uttered, and he has difficulty especially with the linguals. His conversational powers are quite limited. He confines himself to brief expressions of want, and avoids speech when possible. Little can be made out by questioning

him concerning his past life. This seems to be a complete blank, but for more recent events his memory is better. He has a pretty clear appreciation of time and place, is careful in his habits and industrious. He works daily at manual labor without more than physiological fatigue and is fond of exhibiting his strength, which is considerable.

Circulation. The heart is normal in size and position; the sounds are not very marked, but there are no murmurs, and the action is fairly regular, the recorded pulse being seventy-six per minute. A mild degree of thickening can be observed in the temporal arteries and the superficial veins in the leg are varicose. The circulation is good and his hands tend to become congested.

He consumes large quantities of food and drink, and his digestion is normal. The area of hepatic dullness is considerably increased. The average quantity of urine in twenty-four hours when idle is about one and one-half litres, of which the following examination was noted: Acid, specific gravity, 1,030; urea slightly below normal; albumen and sugar negative. He perspires on exertion, but not unduly, and when idle his skin is rather dry but of normal texture. The skin is rather loose and can be gathered up in loose folds by the hand. The hair is abundant on the scalp but scanty elsewhere, and there are no hairs on the chest or shoulders. The thyroid body cannot be felt, a point of dullness the size of a half dollar can be detected over the manubrium sterni, but it seems to be limited by the boundaries of that bone. The spleen is not enlarged.

The following is a detailed measurement in the case:

Height.....	1.549
Weight.....	57.480
Circumference of head.....	.571
Length of head from glabella to ext. occip. protub.....	.190
Length from occipital protuberance to tip of chin.....	.216
Breadth of head from one mastoid process to opposite.....	.146
Length from top of forehead to tip of chin.....	.174
Greatest width of alæ nasi.....	.041
Length of nose from upper lip to tip.....	.019
Length from nasal septum to tip of chin.....	.051
Greatest distance between malar bones....	.133
Width of mouth... ..	.057
Breadth of tongue at middle .....	.048
Vertical line from free border of gums to lower part of symphysis....	.027
Length from tempero-maxillary articulation to tip of symphysis of lower jaw.....	.162
Distance between angles of lower jaw.....	.114
Greatest length of ears.....	.077
Greatest breadth of ears.....	.033
Length of arm from acromion to olecranon .....	.361
Circumference of arm at middle.. ..	.280
Length of forearm styloid to olecranon.....	.260
Circumference of forearm at middle .....	.257
Circumference of wrist.....	.181
Length of hand from wrist to tip of middle finger.....	.177

Length of middle finger from palmar fold to tip.....	.073
Length of middle finger on back from m-p joint to tip .....	.098
Length of little finger on palmar aspect.....	.051
Length of thumb on dorsal aspect.....	.079
Circumference of middle finger .....	.070
Circumference of little finger. ....	.057
Circumference of thumb.....	.073
Breadth of nail of ring finger .....	.016
Length of nail of ring finger ..	.009
Circumference of hand without thumb.....	.219
Circumference of hand with thumb .....	.246
Breadth of hand at m-p joint.....	.078
Length of thigh from iliac crest to head of fibular .....	.460
Circumference of thigh at middle.....	.501
Circumference of knee.....	.340
Vertical diameter of patella .....	.057
Transverse diameter of patella.....	.064
Length of leg from head of fibular to ext. mal.....	.422
Greatest circumference of calf .....	.320
Circumference of ankle .....	.205
Greatest length of foot .....	.241
Circumference over heel and instep.....	.348
Circumference of foot over back of toes.....	.230
Greatest width of foot .....	.083
Circumference of body at level of antero-superior spines of ilia	1.005
Circumference of abdomen.....	.980
Latual diameter of chest.....	.304
Antero-posterior diameter of chest .....	.263
Circumference of chest at nipples.....	1.035
Circumference of right side .....	.515
Circumference of left side. ..	.520
Difference between inspiration and expiration .....	.032
Circumference of neck.....	.403

The most constant and significant lesion found post mortem when death has occurred in the advanced stages of acromegaly is hypertrophy of the pituitary body. This admitted, we have two elements whose impress will be felt in the clinical history, (1) a gland functionation abnormaly, and (2) a tumor in the interpeduncular space.

Of the first little can be said in the present state of our knowledge; the pituitary body is a highly vascular gland made up of two lobes separated in the lower forms of animal life united in mammalia. The anterior of these is developed from the ectoderm of the buccal cavity and resembles in structure the thyroid body, and has been found to contain colloid matter like the thyroid. The posterior, on the other hand, is derived from the foetal brain and communicates during foetal life through the infundibulum with a cavity of the third ventricle. This double origin taken in connection with its union in animals possessing a more complicated structure and its period of greatest activity at the time of life when the formative and nutritive functions are most active would suggest some important office in the regulation of the metabolic processes. I have heard it remarked somewhere that the gross appearance of acromegaly suggests a return to the simian type, and this is supported by observing the freedom of the long bones from invasion

and the apparent concentration of the perverted nutrition in the hands, feet and face, the members which preëminently distinguish man from the lower animals.

Its hypertrophy is usually accompanied by an enormous dilatation of the cella turcica, which seems to indicate an effort on the part of nature to provide room without encroaching upon the superadjacent organs. Nevertheless, in a number of cases the pressure on the optic chiasm was sufficient to produce disturbance of vision affecting the nervous apparatus and circulation. This case was examined ophthalmologically by Dr. W. N. Bell, who found nothing abnormal save a mild degree of venous engorgement. Examination of the case was difficult and required a degree of patience, for which I wish to record my appreciation.

Though we have in acromegaly gross lesions affecting the central nervous organs, and probably the peripheral and sympathetic nerves, this is the first case as far as I have been able to determine reported from an institution for the treatment of the insane.

CASE OF INSANITY FOLLOWING TABES DORSALIS, WITH SYMPTOMS OF GENERAL PARALYSIS; AUTOPSY.

Reported by FLAVIUS PACKER, M. D., Assistant Physician.

There are sufficient doubts still existing with reference to propagation of general paralysis from spinal cord disease, to justify the following report: Mickle* gives a classification of reported cases assuming to be an extension of general paralysis from tabes dorsalis, but throws much doubt upon the mass of them from the imperfect histories reported. Westphal† describes a form of mental disease resembling general paralysis in many of its features that follows t. d. in its later stages. The following case is reported therefore, as an instance of the latter form, and presents points of interest in its clinical history and subsequent pathological examination to deserve more than a passing notice.

Case No. 179. Admitted January 19, 1891; age 42; nativity, United States; married; two children living, one dead; photographer; common school education: antecedents unknown; life to puberty unmarked by any untoward circumstances, and development was good.

At the age of 16 he enlisted in the regular army, but was discharged in less than six months for disability due to "organic heart disease and rheumatism;" from this time until he was married, at the age of 24, he was inclined to be nervous and hypochondriacal and was occasionally troubled by pains in the lower extremities. He was industrious and temperate in his habits. For a period of ten years following his marriage there was a very gradual and insidious development of the tabetic symptoms accompanied by attacks of headache and gastric disturbance. His rooms were reached by two flights of poorly lighted stairs and his uncertain movements as he went up and down were noted by the occupants of the adjoining offices; the local physician declares that his gait was already ataxic and states positively that the disease was due to specific infection for which he

* Mickle on General Paralysis, second edition.

† "Allg. Zeitschr. f. Psy," Westphal,

had been treated. The progressive features of tabes at this stage was well marked, and at this time an error of refraction had to be corrected with lenses. Neuralgic attacks, headache and gastralgia were frequent, but the attacks were of short duration. At 35 years, after ten years of well-marked and progressive tabetic symptoms he began to manifest symptoms of mental alienation. He became restless, neglected his business, developed the alcoholic habit, had attacks of vertigo, was irritable and impulsive, untruthful, immoral, disreputable. Later, by endeavors to relieve his pain, he developed the opium habit. At 39 he was admitted to the hospital and then presented, physically, a fairly well-nourished condition; incoördination of lower extremities marked and gait tabetic; wore lenses of strong convexity; pupils unequal and reaction slight; slight cardiac murmur; bowels constipated; venereal scar in groin. His mental condition was one of apathy. Previous to admission he had made several incendiary attempts, that appeared to his friends to arise from his love of mischief and excitement. From his admission to his death he complained of frequent sciatic pains and occipital headache. He was confused and restless, but was always, in various degrees, exalted. At times quite emotional but without depression. Delayed sensation in lower extremities very marked and progressed. The grandiose delusions, facial twitchings, interrupted thought, forgetfulness, untidy habits, lack of moral sense, unequal pupils, loss of facial expression with increase in weight, all indicated general paralysis. Eighteen months after admission he had two apoplectiform attacks, characterized by general weakness and amnesic aphasia. Had occasional noisy spells with great incoherence and exaltation simulating g. p. Three years after admission his increased ataxia and dementia rendered him bed-ridden. Previous to his taking his bed he had a general convulsion. He died three years and two months after admission at the age of 45 from exhaustion in a state of fatuous dementia.

Autopsy 19 hours after death. Calvaria thick and serum abundant; brain, 48 ozs.; membranes thick, opaque, congested—vessels engorged; no cerebro-meningeal adhesions or erosions; large area of softening and atrophy of convolutions involved a part of r. parietal and all of the r. temp. lobe (see figs. 82, Pl. III); basal arteries had opaque and thickened patches; vessels supplying region of gross disorganization apparently clear; r. crus softened; spot of softening in l. pons; and in l. medulla and cervical cord attenuation was marked. *Spinal Cord.* Lumbar cord was softened, and horns enlarged and disintegrated; posterior columns were uniformly dark, and gave evidence of degenera-

tion in a lesser degree throughout its whole extent. Microscopical examination showed that there was marked atrophy of the whole cord. In the cervical region, there was some diminution of the number of the fibres in the most posterior part of the columns of Goll and in the outer portion of the column of Burdoch. The lesion was most marked in the lower dorsal and upper lumbar region, where the fibres were diminished throughout the posterior columns, except in their most anterior portions. The number of fibres were as much diminished, and there were numerous small atrophied fibres. There was an increase of connective tissue which filled the space usually occupied by fibres. (See Fig. 2, Pl. III and Fig 1, Pl. IV).

LIST OF ILLUSTRATIONS.

	Facing page:
Birds' eye view	Title.
Executive building, reception and observation cottages.....	5
Central hospital group	6
Solarium	16
Central hospital group	25
Plan of group 3	26
Interior hospital view	44
Group No. 3	46
Artificial lake	63
Infirmery, workshops, boilerhouse	71
Infirmery facade and dayroom	79
Cortical cells prepared by Nissl's method.....	99
Cortical cells prepared by Bevan Lewis' method	102
Cortical cells prepared by Golgi-Cajal method.....	106
Round celled sarcoma, brain cortex locomotor ataxia.....	110
Reduced facsimile of clinical records	114
Blood prepared by Ehrlich's triple stain	139-142
Brain photographs	147
Brain diagrams	162-166-170-176-180
Photographs, case of stuporous melancholia	192
Photographs, case of acromegaly	194

I N D E X .

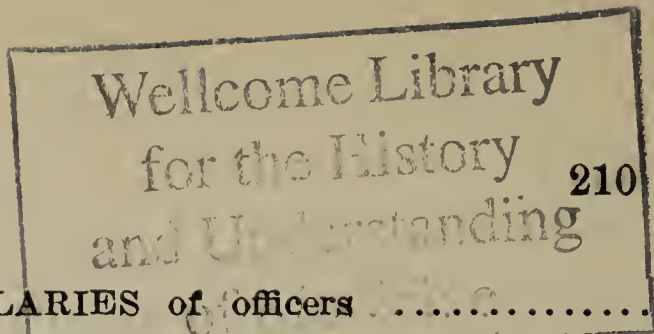
	PAGE.
ACKNOWLEDGMENTS	42
Acromegaly, bodily measurements in.....	197
case of	194
Ages at admission	57
death	58
recovery	57
Airing courts	91
Amusement and diversion	88
hall	17
Appointment of officers	80
Appropriations advised	10
Architect's report	17
Armstrong, Dr. George G., service of	39
Attendants, ratio of	91
to transfer patients	78
Audit, monthly	72
Auto-infection, insanity from	119
Autopsies	87
report of 100	159
table of	160
BAKERY, requirements of	33
Bath, Douche, observations on	132
Bathing appliances	84
instructions in	87
rules for	95
Baths, spray and douche	95
Bedside note blank	114
Bevan-Lewis method	102
Blood examinations	87
in the insane	139
tabulated summary	146
Board of managers	5
Books, requirements for	34
Boundary fence	31
Brain, plaster casts of	111
Bright's disease, insanity from	122
Bristol, Dr. C. L., transfer of	40
Burton, Dr. James, appointment of	40
report by	139

	PAGE.
CASE BOOKS, methods of	113
Causes of insanity	49
Central laboratory, reference to	38
Cerebral apoplexy, case of	116
Chemical restraint	90
Circulatory system, diseases of	120
Civil condition, tabulated	53
Clearing and mounting	109
Clinical records and bedside notes	112
Clinical record, introductory	114
Commitment law	74
Concealed delusions	152
Conservatory	23, 31
Constitutional diseases and insanity	127
Construction and improvements	28
Consulting physicians	86
Convalescent, east	26
Cook, Dr. R. G., reports by.....	99-149-157-192
return of	39
Correspondence, rules of	78
DEATHS, causes of	51
percentage of	50
Delirium, acute, case of	119
Dementia, douche baths for	134
organic, autopsies of	178
senile, autopsies of	177
senile, blood in	139, 140
terminal, autopsies of	172
Dental service	40-88
Diabetic insanity, case of	128
Digestive system, diseases of	118
Dining-rooms, congregate	94
Disbursements of treasurer	15
Dormitories, associated	94
Douche bath, apparatus for	132
observations on	132
Drainage, agricultural	34
Duration of insanity, tabulated	54-55-56-58
Dynamos	23
ECSTASY, case of	140
Education, degree of, tabulated	53
Ehrlich's triple strain	139
Electric road	41
Employes' building	20
colony	29

	PAGE.
Endarteritis, chronic	120
Epilepsy, autopsies of	165
Estimates for the ensuing year	23
the year	28
Examination blank	114
of admissions	86
Exophthalmic goitre, blood in	144
Expenditures for the year	28
FARM PRODUCTS	63
Fencing, agricultural	34
Financial statement	47
Fire department	30
house	19
protection	41
Food supplies, sufficiency of	93
Forms of insanity	50
Furniture fund, report on	14
GARDEN cottage, water for	34
products	63
General paralysis, acute case of	157
and locomotor ataxia	200
autopsies of	163
blood in	141-142
intracranial tumor in	149
Genito-urinary system, diseases of	122
Giacomini's method	110
Golgi-Cajal method	106
Grading	31
Graves' disease, case of	144
Group number three, description of	25
Gynaecology, report on	183
HAEMATOTOXYLON staining	108
Hall, W. C., report of	63
service of	40
Hardening nerve tissues	99
Heart, organic disease of	121
Heredity, classified	52
Hospital district	74
Huntington, C. W., report of	73
Hutchings, Dr. R. H., promotion of	40
report by	132-194
Hydrocephalus ex vacuo, case of	147
IMBECILITY, autopsies of	165
Infirmary additions	18

	PAGE.
Instruments, appropriation for	34
of precision	84
surgical	84
Intracranial tumor in general paralysis.....	149
KATATONIA, blood in	141
Kitchen inspector	93
LABORATORY methods	99
requirements	38
Laundry buildings, additions to	21-32
Laws, rules and regulations	74
Librarian's report	73
Library, review of	85
Live stock on hand	64
MAINTENANCE fund, report of	16
Per capita cost of	28
Managers' report	7
visits of	80
Mania, acute, autopsies of	166
blood in	145
chronic, autopsies of	168
Manufactured articles	64
Mechanical restraint	89
stoker	33
Medical conference, daily	40
reports	97
service	37
staff, additions to	40
literature by	85
superintendent's report	25
Melancholia, acute, autopsies of	170
blood in	140-143
chronic, autopsies of	171
douche baths for	135
stuporous, cases of	142-192
Mended articles	64
Mortality, reference to	36
Mortuary	22-31
Mosher, Dr. J. M., reports by	112-115-147
service of	40
Motors	33
Movement of population	47
NATIVITY of patients	61
Nephritis, case of	143
Nervous system, diseases of	115
Neurasthenia, case of	117

	PAGE.
Nissl's method	104
Nurses' bedside note blank	114
homes	92
training school for	130
OCCUPATION facilities for	89
Occupations, tabulated	60
Officers, list of residence	6
Ogdensburg Medical Association	40
Open door system	90
Ophthalmoscopic examinations	87
Ophthalmological service	40
PACKER, Dr. F., promotion of	40
report by	200
Paranoia, douche baths for	135
Parole of patients	76
Pease, Dr. C. S., appointment of	40
report by	183
Pelvic diseases and insanity	183
table of	188-189
Perry, Isaac G., report of	17
Phthisical insanity, case of	126
Physical disease and insanity, relations of	115
Poultry on hand	64
Private patients	75
RATIO of physicians	81
Readmissions classified	52
receipts of treasurer	15
Recoveries, analysis of	35
percentage of	50
Recovery hastened by diversion	192
Recreational building	28
Report of architect	17
board of managers	7
librarian	73
medical superintendent	25
steward	63
treasurer	14
special	79
Reports, medical	97
Residence of patients	61
Respiratory system, diseases of	124
Road making	9
Roads	34
Rules, regulations and laws	74



	PAGE.
SALARIES of officers	81
Sanitary conditions	26
Sawyer, Dr. T. C., appointment of	40
report by	159
Section cutting	101
Service of legal processes	78
Sewing-rooms, inventory	66
Sleep chart	114
Special building appropriation, report on	14
Staining	102
State care law	27
Statistical tables	47
Statistics, comments on	34
Sterilizer	33
Steward's report	63
sales for the year	71
Stock barn	32
Suicide, attempted homicide	152
Summary of vouchers	73
Syphilitic insanity, case of	129
TABLES, dorsalis and insanity	200
Tailor shop products	65
Thermograph	114
Towels, proportion of	95
Training school	93
for nurses, report on	130
Transfer of feeble patients	36
rules governing	75-76
Treasurer's report	14
Treatment of acute cases	112
Tuberculosis, freedom from	36
insanity and	124
URAEMIC insanity, cases of	122-124
Uterine examinations	87
VISITATIONS for the year	41
WAGES, rate of	91
Walks	31
Ward buildings, addition of	29
Water-closet extension to infirmary	22
Water pipe to garden	34
Weigert-Pal method	107
Weight chart	114
Wells, James M., report of	14
Window guards	91
Wise, Dr. P. M., reports by	25-79-130-152
Women attendants or men	91

